

The Effect of Enterprise Strategies Employed During the Crisis on the Growth Options of Companies

KÁROLY BALATON, DSc
PROFESSOR

e-mail: balaton.karoly@uni-miskolc.hu

SUMMARY

The recent worldwide economic crisis had drastic consequences for the economies of nations around the globe. As we are at the end of the crisis period, the really interesting strategic question is: what will happen after the crisis. We have some, but only limited, research evidence to answer this question properly. Scholars try to obtain answers by studying the consequences of the previous crisis periods. However, the recent crisis was unique in its expansion and rather accelerated spread all over the world. The present paper attempts to analyze this issue from a company-level point of view. We are interested in learning what has happened during the crisis, and what the reactions of companies were to the emerging new economic, technological and social conditions. The author has conducted empirical studies in Hungary and in the Slovak Republic. The empirical background of the paper includes studies of publications of research groups engaged in doing surveys in the field, as well as primary data collections through questionnaire surveys and interviews conducted in Hungary and in Slovakia.

Keywords: economic crisis, enterprise strategy, adaptation, innovation

Journal of Economic Literature (JEL) codes: M200, L1, L210

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INTRODUCTION

The recent worldwide economic crisis had drastic consequences for economies around the world. Cross-border business and international trade declined in 2009 by about 9%, while foreign direct investment dropped by more than 40% in the same year (Ghemawat, 2010). While the leading nations of the world economy were plagued with recession, countries like China and India continued their growth path. In 2009 China realized 66% of the global growth in GDP, and India 11% (Ghemawat, 2010). The projected high growth rate of the BRIC¹ countries will lead to radical restructuring in the world economy with North America and Europe losing their previous political and economic influence.

The crisis has had an enormous influence on the transforming Central and Eastern European economies as well. Some of these countries, like Hungary, Romania and Bulgaria had serious difficulties due to

macroeconomic imbalance and increasing inflation (L. Muraközy, 2010). These countries were not prepared for the consequences of the rapidly spreading crisis, and – contributing further to the difficulties – seriously underestimated the possible extent of the crisis. At the end of the crisis, the really interesting strategic question is what will happen next. Will the development path repeat the tendencies followed before the crisis, or will totally new directions of development emerge? We have rather limited research evidence to answer this question properly. Scholars try to get answers by studying the consequences of the previous crisis periods (Gulati, et al. 2010). But the recent crisis was unique in its nature, expansion and rather accelerated spread across the world, and therefore it is not certain that the processes will be the same as in recovery from earlier crises.

This paper tries to analyze the above issue from a company angle. We are interested in learning what has happened in companies during the crisis, what their reactions were to the emerging new economic, technological and social conditions, and what tendencies of development may be identified recently. The empirical

¹Brazil, Russia, India and China

background of the paper includes an analysis of publications of researchers engaged in doing surveys in the field (e.g. Ringland et al. 2000; Waldman, 2010), as well as primary data collections through questionnaire surveys and interviews conducted in Hungary and the Slovak Republic.

MACROECONOMIC BACKGROUND

Hungary and Slovakia have many similarities concerning their social, economic and political heritage dating back to the period before the political changes around 1990 (Kiezun, 1991). But behind these similarities there are interesting alterations in the patterns of development, especially after 1990 (Balaton, 2007).

Hungary was rather successful in hosting a relatively large volume of foreign direct investments (FDI) during the first half of the 1990s. The Hungarian Government decided to adopt the sales type of privatization. This meant that state owned firms were offered for sale to those who could offer acceptable prices for the companies. As capital inside the country was rather limited, that type of privatization resulted in the overwhelming role of foreign investors in the ownership structure of enterprises located in Hungary by the end of the century.

Slovakia (and, until January 1993 Czechoslovakia) followed a different economic policy concerning privatization. Vouchers were distributed among the population and these vouchers could be exchanged for shares of state owned enterprises. The shares were then purchased by the investment funds owned by state owned banks. So the “privatization” had resulted in restored state ownership of enterprises by the mid-1990s. No relevant structural changes were implemented during the first half of the 1990s (Clark and Soulsby, 1999).

This policy had temporary macroeconomic advantages compared to Hungary. While in Hungary the restructuring was relatively accelerated it resulted in a high level of inflation (about 39% in 1993), a depression (38% GDP decline between 1989 and 1993 measured by comparable prices), and an unemployment rate of about 17% (Kornai, 1993), while in the Czech Republic and Slovakia there were no such radical consequences. Economic restructuring took a major step after the involvement of foreign direct investors during the second half of the 1990s. The necessary restructuring resulted in economic slow-down, inflation and increasing unemployment as well, but these consequences were moderate in their extent compared to those of Hungary.

Slovakia was rather successful since the second half of the 1990s in inviting foreign direct investors, especially in the automobile industry. This fact contributed to the relatively fast growth rate of the Slovak Republic around the turn of the century and helped the integration of Slovakia into the European Union. The growth rate of the country even accelerated after the integration and this

resulted in the capability to change to the euro as the national currency in 2009.

In the same period Hungary became less attractive for foreign investors, partially due to high tax rates and increasing level of macroeconomic instability, parallel with rapidly spreading corruption. During the period between 2002 and 2010 the economic stability of Hungary eroded and the country became incapable of introducing the euro. State expenditures exceeded the level of income and the country was near to bankruptcy during the summer of 2010. The newly elected Government has introduced radical measures to restore the balance and their results could be observed after 2011.

PREVIOUS RESEARCH EVIDENCE ON STRATEGIC CONSEQUENCES OF THE CRISIS AT ENTERPRISE LEVEL

The start of the late economic crisis was marked by Lehman Brothers filing for Chapter 11 bankruptcy protection on September 15, 2008. Within six months the crisis has spread throughout the world and endangered many previously successful economies like Ireland. Even economically stable economies like the US, Germany and France were seriously hit and the consequences would influence the coming years in nearly all countries of the world.

As the crisis had approached its end, more and more scholars were interested in discovering what would happen after the crisis. Harvard Business Review has published a series of three papers in the March 2010 issue, spotlighting the topic of strategy in a weak recovery. The articles by influential authors such as Pankaj Ghemawat, Ranjay Gulati, and Nitin Nohria agreed that rather limited research evidence was available in the field and they tried to get ideas by studying the experiences of the previous crises since 1980. Although the authors admit that the previous crises were much more limited in their expansion and were also different in their origin and nature, they arrived at some conclusions worth having in mind when thinking on possible future enterprise strategies after the present economic crisis. One of the important conclusions drawn by Gulati et al. (2010) is that concentration only on cost-cutting during the crisis is unlikely to lead to successful expansion after the crisis (Gulati et al., 2010). The authors found that emphasis on operational efficiency parallel with concentration on market development and asset investment have resulted in the best results measured by increase in sales income and earnings before interests, taxes, depreciation and amortization (EBITDA) (Gulati et al., 2010). Mere concentration on reduction of employment level and cost cutting did not result in successful recovery after the crisis. It is also noteworthy from their study that concentration only on innovation and asset investment during the crisis was not connected to

successful enterprise performance after the crisis. So neither restriction nor mere innovation in itself seemed to be the proper cure during the economic crisis. Another lesson to bear in mind is that rapid, short term solutions often have disadvantages when evaluated by taking into account consequences in the long run (March, 2003).

Ghemawat (2010) forecast the possibly more important role in adapting to local norms and the growing organizational power of the local country. Parallel with increased pressures on pricing, multinational companies have to be sensitive to regional varieties of offering, as local differences will become more important. These organizational changes will increase diversity within multinational firm, but at the same time they will increase the need for cohesive corporate cultures and tightening talent management practices (Ghemawat, 2010).

As a consequence of the accelerated changes and turbulence during the last few years some authors speak about the next wave of creative disruption. Waldman in his recent book postulates: "In fact, the growth of the mobile internet, the return of economic growth after 2012, and the constant potential for entrepreneurs to come up with products and service that satisfy fundamental consumer need are, I believe, going to drive another great wave of creative disruption in the near future." (Waldman 2010:46). He then states, "I predict that the era of creative disruption has only really just begun." (Waldman, 2010:48).

The radical strategic changes that may emerge during the coming years will probably have an influence of the organizational structures and processes companies will be adopting. Ringland et al. (2010) speak about double-cone organizations where traditional hierarchy dealing with specified and routinized activities will be existing parallel with activities characterized by lack of clarity, ad hoc solutions, private inspiration, and luck.

Summarizing the above discussed predictions for the after-crisis situation it may be perceived that there seem to be limited possibilities for using the previously prescribed solutions. Learning, adaptation to emerging new situations and flexibility may be regarded as crucial capabilities that organizations of the future will need in order to be competitive. Bahrami and Evans have formulated that requirement as follows: "The object of becoming super-flexible is to be able to either intentionally precipitate a transformation, or to make modifications in response to changing situations. Adaptation occurs either during the course of, or after, an unfolding change episode, and may simply be random in that one may be just at the right place at the right time." (Bahrami and Evans, 2005:22).

Research methods utilized in both countries included questionnaire surveys, interviews with top managers, analysis of company documents and case study development.

The Hungarian surveys were part of a larger research endeavor aiming at studying the competitiveness of Hungarian enterprises. The first survey was conducted in Hungary between April and November 2009. The author's personal involvement in the research was connected to developing the questionnaire and analysing the survey data and writing working papers. The survey collected answers from 1.246 top managers working in 313 enterprises, belonging mainly to the SME sector. Distribution of firms according to the number of employees was as follows: 21% of the firms had below 50 employees, 47% between 50 and 99 employees, 20% between 100 and 249, and only 2% had more than one thousand employees. Manufacturing industry companies represented 42.4% of the sample, service firms had a ratio of 23.0%, and trading companies 19.1%. In data analysis descriptive statistics, correlation analysis, factor and cluster analysis were used. The empirical findings used in the present paper were published in the Preliminary Report of the survey (Chikán et al., 2010).

The second survey was conducted between May and November 2013. The survey collected answers from 1.200 managers of 300 enterprises. Size distribution of the sample according to number of employees was as follows: 11% of the firm employed less than 50 persons, 48% between 50 and 99 employees, 26% between 100 and 249 employees, and 16% had more than 250 persons. Distribution of companies according to branches of the economy was the following: 8% of firms belonged to agriculture, 45% to the processing industry, 4% to the supply of electric energy and gas, 8% to the construction industry, 20% to trade, 6% to the hotel and catering trade, and 9% to logistics. Data analysis methods were the same as in 2009. The findings were published in the Preliminary Report of the survey (Chikán et al., 2014). The present author's personal involvement was participation in revising the questionnaire.

Overlap of the companies in the two surveys is limited, although in the survey of 2013 each of the companies were asked who participated in the previous survey in 2009. The structure of the two samples is similar according to size and profile of companies.

In Slovakia the questionnaire survey, the case studies and the interviews were conducted by graduating students at master's level under the supervision of the author. The Slovakian questionnaire survey was conducted between September 2008 and February 2009, and included 200 companies. Distribution according to the number of employees was as follows: below 10 employees: 34%, between 10 and 49: 39%, between 50 and 99: 14%, between 100 and 249: 13%. Of the firms, 49% of the firms belonged to the service sector, 34% to industry, 4% to agriculture, and 12% to public administration (K.

RESEARCH METHODS AND SAMPLES

Muraközy, 2009). Data analysis methods included descriptive statistics and correlation analysis.

REACTIONS OF ENTERPRISES TO THE CRISIS IN HUNGARY AND SLOVAKIA

In this section we summarized the findings of the empirical research conducted in the two countries.

Hungarian experiences

As it was mentioned above, in Hungary there were two surveys during the period of the economic crisis. Below we provide a short account of the major findings.

Survey results from 2009

The empirical evidence from the questionnaire survey of 2009 in Hungary shows that the first – and most frequently observable – reaction of enterprises was to reduce cost levels, to downsize operations and to reshape organizational structures towards more simple and less expensive management systems. This is the traditionally observable reaction of companies and this strategy is most frequently advised to company managers by standard textbooks of economics and management. This strategy has resulted in many cases in the capability to survive the crisis situation and preserve conditions for continuing business activities when the crisis reaches its end.

Our sample shows that 34.6% of the companies suffered a decrease of more than 10% in domestic sales turnover in 2009 compared to the previous year, while 20.3% experienced a less than 10% decrease. Of the firms, 24.5% of the firms reported stagnation in their domestic sales. 35.9% realized less than 10% growth, and 15.0% managed to increase domestic sales turnover by more than 10%.

In export sales 40.4% of the companies reported an annual decrease of more than 10%, and 20.2% less than a 10% decrease. Of the firms in our sample, 18% experienced stagnation in exports, and 13.5% managed to realize modest growth (below 10%), while only 7% were capable of increasing export sales by more than 10%.

The crisis resulted in relevant changes in company strategies. While during the previous surveys (in 2004, 1999, and 1996) realization of profit was the most important target, in the 2009 survey 170 companies (60,3%) gave the answer that surviving the crisis was the most important aim, and 123 mentioned profit realization as the No. 1 strategic goal. There was no relevant difference among the companies according to their size. The most frequently followed strategy was defensive (26% of firms), and the shrinking strategy proved to be second most frequent (20% of companies). In 2008 growth oriented strategies were the most frequently observable

ones (43%), and defensive strategies were followed by less than 10 % of the firms. In 2009 companies mainly used their resources to defend their existing market positions. The defensive strategy in many cases was not the consequence of a purposeful strategy, but more as a result of a lack of strategy and a situation which might be described as muddling-through. Lack of clearly defined strategies was observed more frequently in case of smaller firms. We did not find any relevant effects of industry on the strategic orientation of firms.

It was a clear sign of defensive enterprise strategies that R&D was evaluated as the least important functional area within the company. 43% of the firms did not have branded products. The companies in our sample more frequently used the company name as the brand name, and only one fifth of the sample firms had an independent product brand name. The ratio of companies introducing new products and technologies had decreased compared to the previous survey in 2004. Companies generally complained that they got limited state support for innovation and lack of adequate financial resources was mentioned as a major reason behind the limited innovation. The importance of organization development was also under-evaluated by the responding managers. Modernization of organizational and management structures were given rather limited importance among the priorities of top managers.

The overall picture observable in the survey in 2009 shows a rather defensive management approaches where companies concentrated only on survival. They generally did not have strategies concerning how to start development, had rather restricted information on their future possibilities, and in many cases had no clear strategic direction. We could hardly observe any conscious steps to improve existing products or even more develop new products or upgrade technologies. The marketing efforts only concentrated on maintaining existing market shares and there were hardly any signs of trying to enter into new markets and develop products to be sold on new markets.

The overall picture of the Hungarian enterprises in 2009 showed that the necessary preparatory actions for the period after the crisis were missing in the practices of enterprise managers in our sample.

Survey results from 2013

In 2013, 46% of the companies reported declining sales possibilities in the domestic market, and only 18% of the respondents gave the answer that their sales options had improved in Hungary. Concerning export sales, the opinions were rather dispersed: 27% of the firms perceived improvement, while 25% saw declining sales possibilities abroad. The export sales was mainly oriented towards the developed Western-European EU member states. In 40% of the firms the export sales had increased in comparison to the value in 2009.

41% of the company top managers had the opinion that the crisis was more severe than they had expected it to be in the autumn of 2008. One third of the managers shared the opinion that the crisis was behind them, while 40% had the opinion that more than one year would be necessary to start growth. Another 17% gave the answer that growth might start within one year.

The influence of the crisis was mainly observable in the worsening liquidity of customers, in decreasing demands and in increasing environmental uncertainty. Between 2009 and 2012 the level of production had declined or stagnated in about 80% of the companies in our sample.

69% of the respondents shared the opinion that they are fast adapters to the changing conditions. 57% of the firms did not have a written strategy, but had a shared picture for the future. The average time horizon of strategic planning had increased a bit compared to the previous survey. The percentage of companies developing strategies for the next 2 to 5 years had increased, while the ratio of firms having strategies for only the next 1 to 2 years had decreased. About half of the companies update their strategies annually. The most frequently observable strategy was concentration on stabilization, while during the previous survey a defensive strategy was the most widespread.

In strategy implementation the companies concentrated on product differentiation and quality improvement. Introduction of new products was not characteristic for the firms in the sample. In marketing, reduction of costs was a generally observable feature. The value of investments has decreased or remained at the same level in about two thirds of the firms. R&D expenditures have decreased in more than one third of the companies. Profitability did not reach the planned level. Strategic alliances had increased in marketing and sales, but not in R&D. At the same time the managers accepted the need for increasing R&D and innovation.

Comparing the survey results of 2009 and 2013, we can not identify drastic changes in the strategic orientation of Hungarian enterprises. There were, however, some weak signs of getting to the end of the crisis period and starting preparation for the future. This could be observed in the practices of product improvement and quality enhancement, and in emerging strategic alliances in marketing and sales. R&D and innovation, however, had not improved to any significant extent. It is a positive sign that enterprise managers had become aware of the need to increase their activity in R&D. It may be stated that enterprise managers were still in a waiting position – that is waiting for the start of economic growth – and their strategy was still waiting for this point before beginning innovative and growth oriented activities.

Slovakian experiences

The overall picture of the survey (conducted between September 2008 and February 2009) reveals that companies stagnated or decreased the volume of their

output. A majority of the responding managers (59%) shared the view that the crises would last for about 2 to 3 years (the end of the crisis was connected to the start of an increase in the GDP of the country).

Labor costs were unchanged in 51% of the companies, while 26% reported a decrease, and another 15% forecasted changes during the coming months. A possible increase in wage level was mentioned by 5% of the respondents. Expenditure related to education and training was unchanged in 33% of the firms, decreased in 31%, and 21% of the managers expected a decrease during 2009.

Costs related to advertisement and communication remained unchanged in 34% of the firms, decreased in 29%, and an expected decrease was reported by 17% of the respondents. Expected growth of costs was mentioned by 13% of the companies in the sample. Overall marketing expenditure was unchanged (compared to the previous years) in the practice of 60% of the firms, a decrease was reported by 14%, and an expected decrease by another 14%. A possible increase in marketing costs was mentioned by 9% of the respondents.

Investments were reduced in 32% of the companies, 27% reported no changes, and 28% mentioned a possible decrease during the coming months, while an increase in investments was forecast by 12% of the firms.

The introduction of new technologies was reported as being unchanged in its intensity during the crisis by 56%, and decrease was mentioned by 13%. Possible decrease in the next years was predicted by 12%, and possible increase was mentioned by 15% of respondents. Increase in the intensity of introducing new technologies was characteristic for 4% of the firms.

Discussion

The most characteristic management strategy during the crisis in both countries was cost reduction and concentration on survival. However, other strategies were also observed which were connected to innovation and growth. This strategic approach was characteristic of enterprise managers having longer term strategic time horizons (Csiba, 2010). Another important influencing factor behind was the available financial resources to provide a possibility for executives to think ahead and start preparations for a possible growth period after the crisis. Our empirical studies show that this way of thinking was observable at the minority of enterprises especially in case of SMEs.

The entrepreneurially minded managers of the latter group of firms shared the view that the crisis period is not only an area with difficult problems to be solved in a short period of time, but at the same time it is a period of unprecedented opportunities to move forward and develop competitive advantages when increases in demand begin arriving (Waldman, 2010). These companies started to develop new R&D projects, invested in broader areas of innovation and now they are more or less prepared to

launch their new products and services which represent a higher level of technological development and meet customer needs at a higher level compared to the period before the crisis. Based on his previous experience and insights concerning the future possible directions of strategic development, the present author is convinced that the success stories after the crisis will be connected to enterprises following the innovation trajectory during the years of crisis.

Another field of development observable in our empirical studies is related to the increasing role of inter-organizational relationships through different forms of strategic alliances and emergence of clusters. The permanent need for cost efficiency and improvement of innovation capabilities drives companies towards new forms of strategic alliances, enhancing the capabilities of business firms to accelerate innovation, develop new capabilities through co-operation, share risks and make costly innovation projects financially realizable. These development tendencies have been observed especially in industries characterized by severe competition, high technological development rates, and needs for meeting new customer expectations (see Hokansson and Lind, 2004).

CONCLUSIONS AND FURTHER RESEARCH

We have to admit that the available empirical evidence is rather limited from the point of view of making a general forecast for future development tendencies. However, the observable intentions of enterprises provide possibilities for drawing attention to the emerging new tendencies and new strategic logic developed by enterprise managers. Further and more extended studies will be necessary to check whether the directions of development indicated by the studies presented here are broadly expanding new tendencies of enterprise level strategic management or they are only locally observable examples.

It was observable in both the Hungarian and the Slovakian sample that perceptions and intentions of managers with an influence on strategic directions of their firms have an important role in understanding the emerging strategies during and probably after the crisis. Therefore, there is a need for further and mainly qualitative

studies concentrating on behavioral patterns of strategy formulation. The approach to strategy advocated by Henry Mintzberg and others (Mintzberg, 1994, Mintzberg et al., 1998, March, 1991, March, 1994). Both the literature and our empirical experience show that managers frequently show a preference for actions having an influence on the performance of their company in the short term, and thus short-term survival motivations outperform longer-term innovation and renewal. This is the issue described by March (1991) as the dilemma between exploitation and exploration. Short term – even quarterly – interests of managers in producing the financial results expected by shareholders work against renewal and longer term prosperity.

We have rich ideas supported by theoretical arguments and empirical evidences under the heading of “ambidextrous organization” (Skat-Rordam, 1999; Tushman and Anderson, 2004; Hokansson and Lind, 2004; Hokansson, 2010). The research work and the paper by Hokansson and Lind (2004) open up a new dimension of hopefully fruitful studies by drawing attention to the inter-organizational dimension of ambidexterity. Approaching the problem of how to meet the contrasting requirements of short-term efficiency and longer-term innovation, we are often faced with the dilemma of “right or left hand” (see e.g. Leavitt, 1987). Some managers are encoded for managing by their inspiration and vision, named as path-finding managers by Leavitt (1987), while other prefer well-structured approaches supported by rich empirical data and quantitative analysis. The present author is convinced that new insights into successful and unsuccessful business strategies either locally or internationally may be obtained through the deep-level knowledge and understanding provided by this area of investigation.

In order to be able to understand the deeper levels of influencing factors in strategic management decisions we have to analyze the psychological, religious, philosophical and practical life element as well. This is a huge endeavor which requires scholars from many different fields, and experiences from different countries have to be collected. At the present moment we have good chances in Hungary to organize the necessary number and composition of researchers and financial support may be acquired through the National Long Term Research Grant under the auspices of the Hungarian Academy of Sciences.

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Economic Impact of Credit Guarantee System– Hungarian Case Study

DANG THAI BINH
PHD STUDENT

Email: vgttbinh@uni-miskolc.hu

SUMMARY

This paper is a in-depth analysis and impact assessment of the credit guarantee system of Hungary. This study focuses mainly on the practice of Garantiqa Creditguarantee Closed Co. Ltd and evaluates and analyzes the impact of the credit guarantee on Hungarian economy in providing benefits to small and medium sized enterprises (SMEs), which contributes to the economic development of Hungary through providing benefits to the banks. Based on a comparative analysis this study shows a positive impact on the Hungarian economy.

Key words: credit guarantee, bank, SMEs, Garantiqa

Journal of Economic Literature (JEL) codes: D21, G20, O20

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INTRODUCTION

Credit guarantees are widely used in many countries around the world and are regarded as a policy instrument to promote economy, especially boost SMEs, create more jobs, stabilize the market etc. Governments of most countries seek to encourage Small and Medium Sized Enterprise (SME) growth and the job creation that many believe is fostered by such growth. Each country would like to choose a suitable model guarantee. The Hungarian system of credit guarantee has a model including three major credit guarantee institutions: Garantiqa Creditguarantee Closed Co. Ltd, Rural Credit Guarantee Foundation and Venture Finance Hungary Private Limited Company; of these Garantiqa Creditguarantee Closed Co. Ltd (Garantiqa) plays the most important role. The credit guarantee system helps the SMEs' access to bank financing by providing credit default guarantees and therefore enhances their development and competitiveness. By creating more jobs and economic value, it played an especially important role in dealing with the financial crisis in 2008.

This paper attempts to evaluate the impact of the credit guarantee system on the economy through the case of Garantiqa Creditguarantee Closed Co. Ltd. (Garantiqa Hitelgarancia Zrt) of Hungary. It was founded by the Hungarian State and financial institutes in 1992. In 2013, it is 46.84% majority-owned by the Hungarian Development Bank Group (MFB), which is 100% owned by the Hungarian State.

LITERATURE REVIEW

Although the impact of the banking relationship on SME credit rationing has been widely analyzed in the literature, guarantee rationing has perhaps received the least attention of all (Mendizab et al. 2014). There have been several studies analyzing the economic impact of credit guarantee around the world. Credit guarantees for SMEs and the impact of credit guarantees have been widely studied in the past. Levitsky and Prasad (1989) provided information on credit guarantee schemes in 27 developed and developing countries. Their paper helps the readers to understand the operation of credit guarantee system (main elements, scope, problem). At the same time it also presents an evaluation of the guarantee schemes that the authors examined about the scope and their impact, in terms of lending, creating confidence, loss rate in different regions in the world.

Credit guarantees have an important role and impact on SMEs, lenders and the economy. According to Levitsky (1997) and to Beck et al. (2010), credit guarantee has an effect by increasing lending to SMEs, thus increasing access to finance of SMEs. Credit guarantees help SMEs to reduce the costs of borrowing (Beck et al., 2010). Also, credit guarantee ensures new business formation, development and expansion (Levitsky, 1997; Nitani & Riding, 2005; Roodman & Qureshi, 2006).

In addition, credit guarantee also encourages lenders by providing collateral as compensation in case the loan is not repaid (Bookwork & Sharif, 2005), while to diversify

risk through the loan guarantee means that credit institute will cooperate with many lenders to underwrite loans (Beck et al., 2010), allowing lenders to transfer risk of recovery of loan to the guarantor (Levitsky, 1997). Credit guarantees incentives to the lenders to help them overcome the problem of information asymmetry (Beck et al., 2010). The guarantors will participate in the application and monitoring process.

Credit guarantee is used as a policy tool to implement the national policies. According to Kang & Heshmati (2008), credit guarantee promotes the welfare and stability of society, accelerates economic growth and decrease unemployment. Additional credit guarantee creates more jobs (Riding & Hannes, 2001) and reduces poverty generally (Roodman & Qureshi, 2006).

Shim (2006) investigated the economic impact of the credit guarantee in Asian countries, using the ratio of credit guarantees outstanding to GDP to evaluate the effects of credit guarantees for economic welfare. According to this, the ratios of Japan and Korea are over 5% in the time period from 2001-2005. The study conducted by the OECD (2013) indicated that credit guarantees amount to a significant rate of GDP. In Europe the highest rate of outstanding guarantee to GDP were in Italy (2.2%), Portugal (1.9%) and Hungary (1.4%); by contrast in Asia, the highest rate were in Japan (7.3%), Korea (6.2%) and Chinese Taipei (3.6%). Also in the statistics of ACEM (European Association of mutual guarantee societies) (ACEM, 2013) the ratio of credit guarantees outstanding to GDP was used to assess the impact of credit guarantees on the economy of all members of ACEM. A study of the Korean Credit Guarantee Fund (2012) also indicated that credit guarantees have an important role in helping the national economy, especially SMEs, to overcome the financial crisis in 2008. In addition, other studies also indicate credit guarantees help create more jobs (Riding & Haines, 2001), reduce the information asymmetry between borrowers and lenders (Beck et al., 2010), increase exports (Janda et al., 2012) etc.

METHODOLOGY

In this paper the author focuses on evaluating the impact of the credit guarantee company on the Hungarian economy through the practice of Garantiqa. As the research is focused just on one organization, Garantiqa, it is important to stress that the results must be handled carefully and not be generalized.

The author selected Garantiqa as the case study because its scope of operation covers the entire territory of Hungary and it is the largest credit guarantee organization in the nation, as well as because of its well-structured, long tradition. Beside, Garantiqa was analysed share an entrepreneurial fabric with a wide-spread SMEs. Because one of the most important factors in the growth process of credit guarantee institutions is provided by the presence of SMEs, which have always found accessing credit difficult. Therefore, Garantiqa was appropriate to analyze

and compare with other credit guarantee systems in the region. By using the methods of analysis and comparison, this article can provide lessons and experiences useful for managers, policy makers and other interested parties.

The author has studied the operational model, results of operation of Garantiqa during the period from 2005 to 2013 and incorporates the analysis, evaluation, comparison of some indicators of Garantiqa with other credit guarantee institutions. In addition, the performance of the guarantee system of Hungary is compared with other countries in the region and in the world. The author used detailed data from Garantiqa and collected data relating to credit guarantees, SMEs, GDP and other data from other sources such as European Association of Mutual Guarantee Societies (AECM), Central Bank of Hungary, etc. Especially helpful was the opportunity to directly interview Zoltán Urbán, CEO of Garantiqa. This interview helped the author to have a deeper understanding of the actual operation of Garantiqa as well as the impact of the credit guarantee company on the Hungarian economy. By in-depth research on the model of Garantiqa, this paper points out the positive impact of the credit guarantee company on the Hungarian economy in regard to SMEs, economic growth and the banks.

SMES IN HUNGARY

The SMEs have a very important role in the economy of each country. SMEs have the ability to adapt quickly to market, innovate, and be flexible to changes in customers and markets. At the same time, SMEs support large enterprises in the process of production and business. Success factors of SMEs are management capacity, the ability to rapidly innovate, creativity, quality of goods and services, strategic development and an indispensable element, which is capital. Just as SMEs of other countries, SMEs in Hungary have also faced difficulties in the business environment, in accessing finance from banks and credit institutions. In recent years, due to their efforts and support from the government of Hungary, SMEs continue to exist and develop further, and contribute more to the economy.

Table 1
Basic Figures - 2013

| | Number of enterprises | | | Number of employees | | | Value added | | |
|---------------------|-----------------------|---------------|---------------|---------------------|---------------|---------------|-------------|---------------|---------------|
| | Hungary | | EU27 | Hungary | | EU27 | Hungary | | EU27 |
| | Number | Share | Share | Number | Share | Share | Billion € | Share | Share |
| Micro | 521,981 | 94,6% | 92.10% | 885,167 | 35.50% | 28.70% | 9 | 18.70% | 21.10% |
| Small | 24,883 | 4,5% | 6.60% | 472,316 | 18.90% | 20.40% | 8 | 15.80% | 18.30% |
| Medium-sized | 4,212 | 0,8% | 1.10% | 420,215 | 16.80% | 17.30% | 9 | 18.60% | 18.30% |
| SMEs | 551,076 | 99,90% | 99.80% | 1,777,698 | 71.20% | 66.50% | 26 | 53.20% | 57.60% |
| Large | 800 | 0.10% | 0.20% | 718,304 | 28.80% | 33.50% | 23 | 46.80% | 42.40% |
| Total | 551,876 | 100% | 100% | 2,496,001 | 100% | 100% | 49 | 100% | 100% |

Source: http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/index_en.htm

Table 1 clearly shows that SMEs in Hungary play an important role in the economy. According to statistics of European commission (2013), at the end of 2013, the number of SMEs was 551,076 and accounted for 99.9% of total enterprises in Hungary; while the number of their employees was 1,777,698 and accounted for 71.2% of total employment. Besides, SMEs contributed about €26 billion, over 50% of the total economic added value.

CREDIT GUARANTEE SYSTEM IN HUNGARY

The Credit guarantee system in Hungary is operated by three organisations: Garantiqa Creditguarantee Closed Co. Ltd, Rural Credit Guarantee Foundation, and Venture Finance Hungary PLC. The government ensures that the business areas of each credit guarantee institutions do not overlap and thus avoid wasting financial resources. Each credit guarantee organization aim is to provide credit guarantee service for a specific business sector. The Rural Credit Guarantee Foundation aims to provide credit guarantees for rural and agricultural SMEs, while Garantiqa aims to provide credit guarantee services for SMEs, local governmental enterprises, local government, and Venture Finance Hungary PLC provides credit guarantee services, working capital loan venture capital, investment loan for micro enterprises.

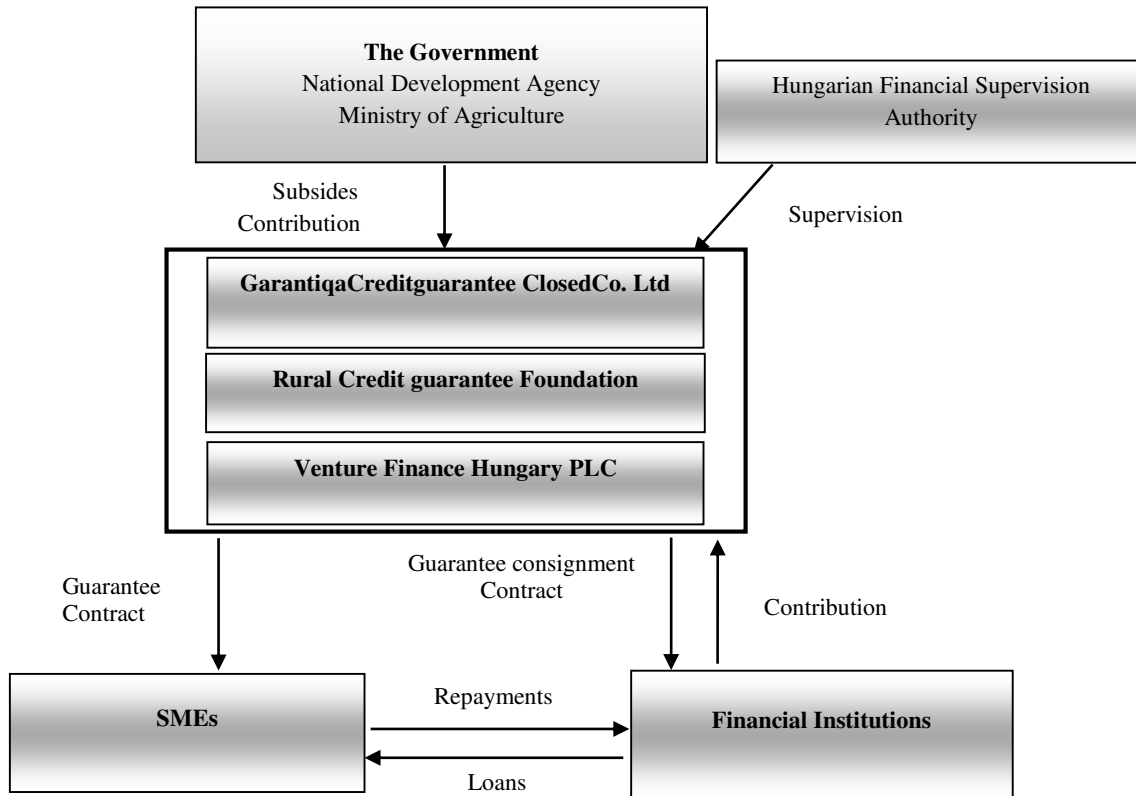


Figure 1. Credit Guarantee System in Hungary

Source: Own elaboration

The government directly supports the credit institutions via agencies and financial institutions indifferent ways, such as providing capital, sharing risk with the credit institution by implementing a counter-guarantee, support through low-interest loans, tax

reduction etc. In addition, the government usually indirectly supports the credit institution by making regulations for lenders when collaborating with the credit institution, supporting fees for the borrower when collaborating with the credit institution etc.

Table 2

Characteristics of credit guarantee institutions in Hungary

| Classification | GarantiqaCreditguarantee Closed Co. Ltd | Rural Credit guarantee Foundation | Venture Finance Hungary Private Limited Company |
|-------------------|---|---|--|
| Establishment | 1992 | 1991 | 2007 |
| Target Enterprise | Trade, service and construction enterprises | Rural and agricultural SMEs | Micro enterprises |
| Major Businesses | <ul style="list-style-type: none"> . Credit Guarantees . Guarantee to loans . Bank guarantees . Financial asset leasing . Factoring contracts . Tender guarantees . Bond guarantees . Other | <ul style="list-style-type: none"> . Bank guarantees . Factoring . Leasing . Guarantees for rural development loans | <ul style="list-style-type: none"> . Working capital loan . Micro loan . Investment loan . Credit guarantee . Venture capital |
| Source of funds | The Government of the Republic of Hungary, financial institutions | EU (PHARE), Hungarian Ministry of Agriculture, commercial banks | Hungarian Development Bank |

Source: <http://www.hitelgarancia.hu>, <http://www.avhga.hu/>, <http://www.mvzrt.hu>

PERFORMANCE OF GARANTIQA CREDITGUARANTEE CLOSED CO. LTD

Garantiqa helps SMEs gain easier access to loans and financial resources in the implementation of the service guarantee to promote SMEs in developing and enhancing competition, supporting SMEs to comply with the requirements of the European Union.

Products

The operation of Garantiqa targets three main types of customers: enterprises, local governments, and local governmental enterprises, with a special focus on promoting SMEs. Guarantee service is the core business of Garantiqa, in addition, it also provides additional services such as leasing, factoring etc.

Table 3
Products of GarantiqaCreditguaranteeClosedCo.Ltd

| Types of customers | Products |
|--------------------------------|--|
| Enterprises | Loan and Bank guarantees Factoring Leasing Tender guarantees |
| Local government | Loan and Bank guarantees Guarantees for European Union subsidies Bond guarantees |
| Local governmental enterprises | Loan and Bank guarantees Bond guarantees |

Source: <http://www.hitelgarancia.hu> and own elaboration

Credit guarantee procedure

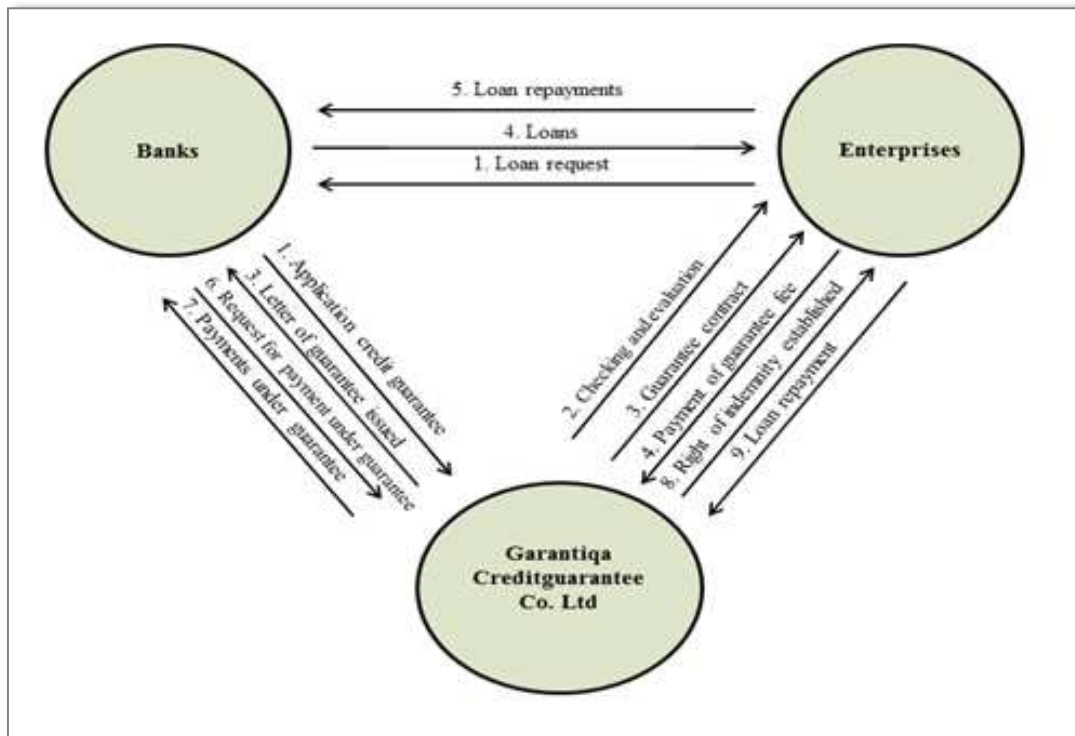


Figure 2. The Process of Undertaking a Guarantee
Source: <http://www.hitelgarancia.hu> and own elaboration

1. An enterprise indirectly applies to Garantiqa for credit guarantees through banks.

2. Upon receipt of an application guarantee, Garantiqa checks and assesses the credit worthiness as well as credit risk of the enterprise.

3. If the application is approved based on checking and assessment of credit worthiness, Garantiqa issued a letter of credit guarantee to the financial institution and requests the financial institution to extend loans to the enterprise. At the same time, Garantiqa performs guarantee contract with the enterprise.

4. The financial institution extends a loan to the enterprise. The enterprise pays a guarantee fee to Garantiqa.

5. Enterprise repayments are made to the financial institution under the terms and conditions of loan.

6. In the case of the enterprise does not repay all or part of loan in accordance with the term, the financial institution requires Garantiqa for payment under guarantee.

7. Garantiqa repays the loan to the financial institution on behalf of the enterprise.

8. Because payment has been subrogated, Garantiqa obtains a right of indemnity against the enterprise. Garantiqa has right of indemnity against the enterprise.

9. Garantiqa recovers the right of indemnity from enterprise when enterprise rebounds.

Eligible enterprise

All enterprises operating for profit are eligible for credit guarantee unless they fall under the categories shown in Table 4:

Table 4
Examples of restriction on using of guarantee products

| Classification | Contents |
|---------------------------------------|---|
| Prohibition or Restrict by Law | <ul style="list-style-type: none"> - Enterprisethathaveincreaseddebt from credit, bank guarantee, factoring or financial lease agreement which is guaranteed by other financial institutions. - Enterprises that have previously used Garantiqa's guarantee service, and made an untrue representation, or are currently in the process of exercising a surety guarantee in connection with its existing transaction, - Enterprise lacking creditworthiness. - Enterprise that have submitted bankruptcy, liquidation, or final settlement. |
| Restricted Industries | <ul style="list-style-type: none"> - Related to manufacturing of arms, ammunition and military combat vehicles - Related to gambling - Whose transactions are the financing of household, personal consumption, sales and lease-back transactions or foreign investments. |

Source: <http://www.hitelgarancia.hu> and own elaboration

Coverage ratio

With the surety guarantee Garantiqa commits to delivering the payment obligations instead of the debtor (or subsidized party) towards the financial institution (or the disbursing party), if the debtor (or subsidized party) fails to comply with its payment obligation. The maximum rate of the surety guarantee 80% and the financial institution will be responsible with the 20% remaining.

The formula of the state counter guarantee regulates the yearly Budget Act. An amendment to the Budget Act that took effect on 20 June 2011 led to a considerable improvement in the conditions under which Garantiqa performs the guarantee assumption activity that largely defines its operations, as the extent of the counter guarantee rose from 70% to 85% in the case of SME products. The higher extent of the counter guarantee also applies in the case of new investment loan contracts.

RESULTS OF OPERATIONS AND ITS IMPACT ON THE ECONOMY

Results of operations

Results of operations of Garantiqa are evaluated firstly related to two indicators: outstanding guarantees and guarantees approved. From 2005 to 2013, Garantiqa had achieved Outstanding guarantees 292,000 cases with a total value of 3,347 billion HUF and guarantees were approved in 251,303 cases with a total value of 2,835 billion HUF. Both indicators are increasing in value and number; they tended to increase especially rapidly during the financial crisis years of 2008-2010. In that period, the ratio of outstanding guarantees averaged over 468 billion HUF/year (nearly 35,000 cases/year), and the ratio of guarantees approved averaged over 406 billion HUF/year (30,100 cases/year) (Figures 3 and 4). That proves Garantiqa has an important role in helping enterprises to access capital from banks that helps enterprises stabilize and develop, especially SMEs. At the same time, it demonstrates that the operation of Garantiqa from the time of its establishment to present is becoming more and more efficient and contributing more to the development of enterprises and the economy.

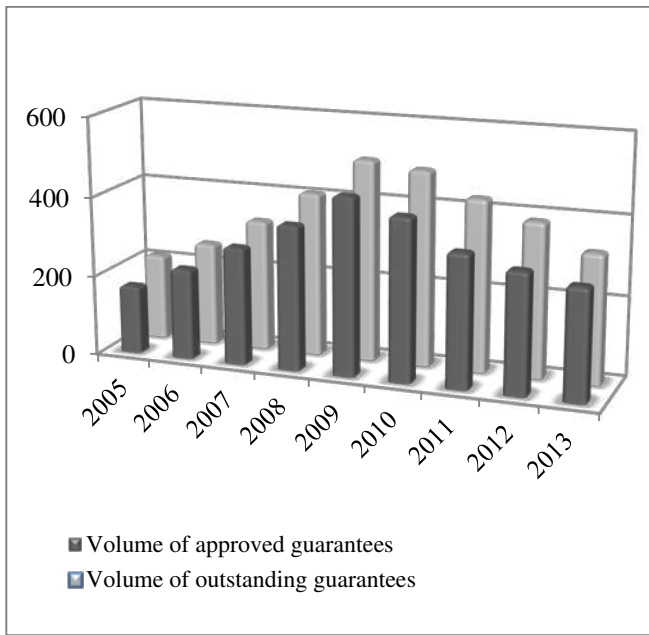


Figure 3. Volume of approved guarantees and outstanding guarantees (Billion HUF)

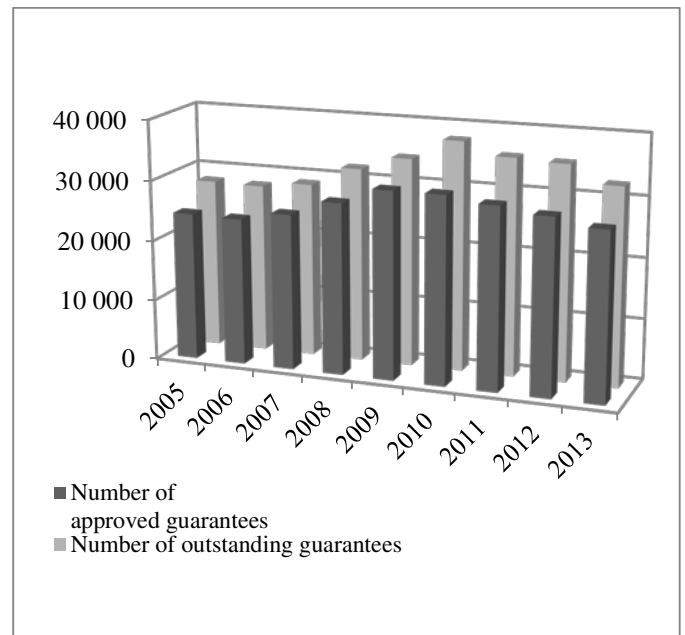


Figure 4. Number of approved guarantees and outstanding guarantees

Source: <http://www.hitelgarancia.hu/en/introduction/annual-reports> and author own calculations

Garantiqa was held by AECM rating (Garantiqa is a member of this organization). To evaluate the effectiveness and growth of its members, AECM has developed the ratio “Proportion of new activity in volumes and number”. This ratio is calculated by dividing guarantees granted per year (new activity) by the outstanding guarantees in portfolio for both volumes and number. AECM implemented statistics from 2010-2012 and statistical results were as follows: averaged for the members of AECM, the new activity has been decreasing in volume since 2010, from 39.97% to 36.68% (2011), and the proportion of new activity accounts only for 33.21% in

2012. The proportion of new activity in numbers has also experienced a downturn trend for three years in a row, from 37.76% new activity in number of guarantees in 2010 to 32.45% in 2011 and to 30.68% in 2012. Garantiqa is one of five members for which the ratio “Proportion of new activity in volumes and number” is highest in statistics from 2010-2012 and is higher than the average of all the members of AECM. The new activity in volume of Garantiqa from 2010–2012 was 88.15%, 84.69% and 84.50% and the new activity in number was 82.18%, 85.94% and 81.93%, respectively. These figures for AECM members can be compared in Table 5.

Table 5

New activity in volumes and number of guarantees for each AECM member for the years 2010 to 2012

| Credit guarantee institutions | Country | New activity in volumes | | | New activity in number | | |
|-------------------------------|-------------|-------------------------|--------|--------|------------------------|--------|----------|
| | | 2010 | 2011 | 2012 | 2010 | 2011 | 2012 |
| Aws | Austria | 24.70% | 17.61% | 19.71% | 14.60% | 10.35% | 12.73% |
| SCM/MOB | Belgium | 33.98% | 37.80% | 0.00% | 47.92% | 57.08% | 0.00% |
| Sowalfin | Belgium | 31.24% | 36.82% | 32.74% | 20.75% | 26.78% | 19.91% |
| NGF | Bulgaria | 94.86% | 60.91% | 19.49% | 97.37% | 52.27% | 17.61% |
| CMZRB | Czech Rp | 35.32% | 7.58% | 8.77% | 32.11% | 10.38% | 18.02% |
| KredEx | Estonia | 68.50% | 50.58% | 51.63% | 48.69% | 43.62% | 42.74% |
| Socama | France | 35.42% | 34.26% | 34.49% | 12.27% | 32.99% | 31.78% |
| Siagi | France | 89.79% | 85.14% | 71.41% | 14.19% | 13.80% | 10.78% |
| VDB | Germany | 25.69% | 19.46% | 18.69% | 18.15% | 15.03% | 14.54% |
| ETEAN S.A. | Greece | 7.91% | 2.33% | 0.84% | 7.24% | 1.10% | 0.32% |
| Garantiqa | Hungary | 88.15% | 84.69% | 84.50% | 82.18% | 85.94% | 81.93% |
| AVHGA | Hungary | 44.55% | 54.54% | 81.53% | 43.62% | 51.76% | 45.61% |
| AssoConfidi | Italy | 41.68% | 45.02% | 38.42% | 54.08% | 34.03% | 29.99% |
| LGA | Latvia | 54.91% | 47.83% | 26.50% | 34.20% | 23.88% | 20.77% |
| Invega | Lithuania | 38.71% | 46.10% | 39.08% | 28.03% | 35.03% | 32.27% |
| MCAC | Luxembourg | na. | 33.83% | 8.06% | na. | 23.88% | 11.48% |
| Agentschap NL - BMKB | Netherlands | 33.29% | 35.39% | 19.83% | 19.69% | 20.90% | 12.78% |
| BGK | Poland | 46.37% | 51.54% | 60.59% | 4.97% | 24.52% | n.a. |
| SPGM/SCM | Portugal | 47.69% | 22.48% | 29.20% | 42.97% | 14.53% | 25.96% |
| FGCR – Rural | Romania | 78.85% | 66.07% | 45.22% | 192.13% | 97.05% | 1321.57% |
| FRGC - RLGf SMEs | Romania | 96.59% | 96.80% | 96.60% | 79.89% | 79.78% | 78.98% |
| SGR/CESGAR | Spain | 27.02% | 20.69% | 17.49% | 39.44% | 29.04% | 20.18% |
| SZRB | Slovakia | 38.49% | 43.61% | na. | 45.07% | 49.62% | n.a. |
| RRA-GIZ | Slovenia | 28.19% | 22.08% | 22.08% | 16.07% | 16.52% | 16.52% |
| KrediGarantiFonu | Turkey | 132.24% | 93.57% | 73.57% | 103.28% | 71.36% | 90.55% |

Source: <http://www.aecm.be/en/aecm-statistics-2013.html?IDC=32&IDD=2777>

To evaluate the performance of a credit guarantee institution, we can use the ratio of profit to outstanding guarantees; this ratio is a measure of profit per HUF of outstanding guarantee. As can be seen from Figure 5, from 2005 to 2007, the profit of Garantiqa increased steadily over the years and the ratio of profit to outstanding

guarantees of Garantiqa was quite high in 2005 (0.69%), 2006 (0.6%) and 2007 (0.48%). This shows that Garantiqa is not only a policy tool to support economic development but also that it can survive and develop without support of the State.

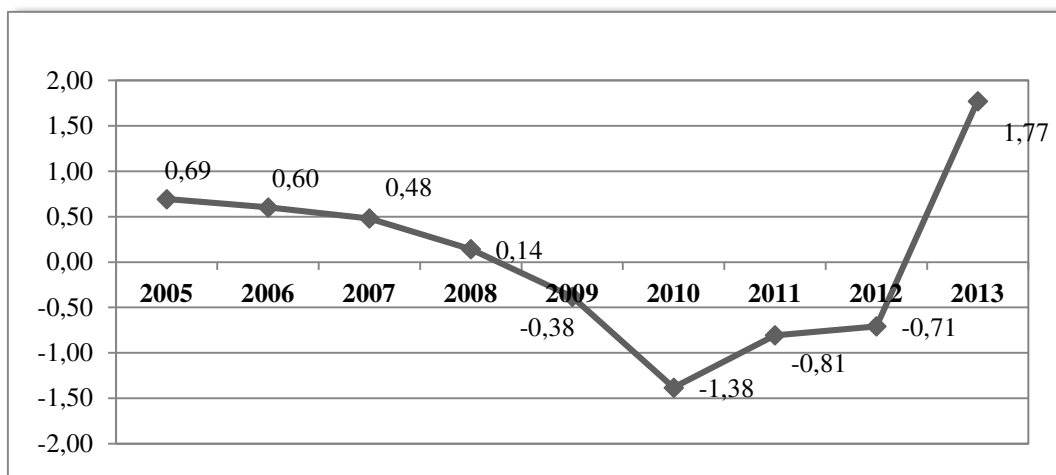


Figure5. The ratio of profit/outstanding guarantees (%)

Source: <http://www.hitelgarancia.hu/en/introduction/annual-reports> and author own calculations

However, during the period of financial crisis, the results of Garantiqa continuously loss in the period from 2009 to 2012. The losses of Garantiqa in this period are due to the several reasons. The first is the impact of financial crisis on enterprises, especially SMEs, leading to defaults. Therefore, the proportion of guarantee and redemptions of Garantiqa rose (from an average of 3% to over 6%). The second cause is the increase in the rate of coverage of counter guarantees undertaken by the state to 85% in 2011, which may have contributed to an increase in Garantiqa's risk-assumption activity. The third reason is Garantiqa performed reduction of guarantee fee paid by SMEs from 1.7 to 2.2% pa to 0.5-1% pa (from 2012), which decreased the income of Garantiqa. In addition, in 2010 a number of unplanned expenditures appeared (e.g. the special bank tax), which increased the total costs and led to Garantiqa's losses. However, with a change in management, a policy of cutting unnecessary costs, the guarantee portfolio was carried out and a new debt-rating system developed, among other changes. These activities made a profit for Garantiqa and the ratio of % profit to outstanding guarantees is the highest so far at 5.73 billion HUF and 1.77% in 2013.

In addition, in its the operation and development, Garantiqa always innovates, efforts and results of operations of Garantiqa are rated by its market share in the market of credit guarantee of Hungary. Garantiqa's market share was 74.5% in 2013, with the Rural Credit Guarantee Foundation holding 20%, Venture Finance Hungary Co.Ltd 5.1% and just 0.4% for Start Guarantee Co.Ltd. Thus, Garantiqa is the credit guarantee institution with the largest market share in Hungary and the dominant business activity of credit guarantee as well as the majority of client are attracted to Garantiqa.

Impact of Garantiqa on the Hungarian economy

From its establishment until now, Garantiqa strives to serve enterprises, especially SMEs, in the best way. Through its innovation efforts and Garantiqa's aim to gain the trust of businesses, banks, credit institutions, and other partners, it increasingly contribute more to the development of the Hungarian economy. The impact of Garantiqa on the Hungarian economy is demonstrated in a number of key points:

(1) Provide benefits to small and medium enterprises

Difficulties of SMEs in accessing finance can be overcome when there is a guarantee of Garantiqa. It promotes and encourages the development of SMEs by providing a guarantee to help SMEs to borrow loans with simple procedures and quickly. During the period from the year 2005-2013, Garantiqa made guarantees to 256,689 SMEs.

The importance of Garantiqa's guarantee activity with SMEs is illustrated by the fact that in recent years 10-12% of the volume of bank loans granted to SMEs have been secured with payment guarantees from Garantiqa. In the period from 2005 to 2013 more than 14% of the number of loans extended to SMEs in the whole banking system loans to SMEs were guaranteed by Garantiqa (Table 6).

At the same time, through guarantee activities, Garantiqa helps SMEs to gain easy access to access to medium and long-term loans, which helps SMEs become more active in financial matters and their business plans. Garantiqa can provide guarantees only as regards commitments with a duration of no more than 25 years. Besides, Garantiqa uses low-fee guarantees, which reduces the borrowing costs of SMEs, thereby reducing product costs and increasing the competitiveness of SMEs.

Table 6
The proportion of Loan guarantees extended to SMEs by Garantiqa/
Loans extended to SMEs by bank sector

| Year | Loans extended to SMEs by Bank sector (cases) | Loans extended to SMEs by Garantiqa (cases) | Loans extended to SMEs by Garantiqa/ Loans extended to SMEs by bank sector |
|--------------|---|--|---|
| 2005 | 82,206 | 23,668 | 28.8 % |
| 2006 | 134,668 | 23,478 | 17.4 % |
| 2007 | 143,673 | 25,669 | 17.9 % |
| 2008 | 179,117 | 28,329 | 15.8 % |
| 2009 | 292,476 | 33,880 | 11.6 % |
| 2010 | 472,530 | 32,227 | 6.8 % |
| 2011 | 442,957 | 30,635 | 6.9 % |
| 2012 | 382,862 | 30,604 | 8.0 % |
| 2013 | 618,671 | 28,208 | 4.6 % |
| Total | 2,749,160 | 256,698 | 14.1 % |

Source: <http://felugyelet.mnb.hu>, <http://www.hitelgarancia.hu> and own elaboration.

(2) Contribute to the growth of the economy

Garantiqa plays a significant role in supporting SMEs to achieve financial growth and prosperity; in addition, it also plays a major role in the stability and economic growth. The importance of a credit guarantee institution in the economy can be measured by the ratio of outstanding guarantees to GDP. If this ratio is high, it means the contribution and the role of a credit guarantee institution is important in the national economy. Figure 6 shows the ratio of outstanding guarantees to GDP for Hungary increased steadily from 2007 to 2012 and in particular this ratio increased during the financial crisis from 2008 to 2010. This indicates that the guarantee system of Hungary played a major role in helping to stabilize the economy during the financial crisis. To explain the position of Garantiqa as well as the credit guarantee system in the Hungarian economy, we can compare the ratio of credit guarantee system of Hungary

with other countries in the European region. This ratio of Hungary is very high in comparison with other countries in the region and ranks only second behind Italy. The contributing to this ratio is largely from Garantiqa.

Figure 6 shows that while for all AECM members the ratio of outstanding guarantees to GDP is tending to increase, Hungary, Italy, and Portugal are the only three countries whose ratio has increased steadily over the years, is stable and with a ratio of more than 1% GDP. The remaining countries have very low indexes and stand at less than 1% of GDP. Compared from 2007 to 2012, Italy (1.89%, 1.92%, 2.11%, 2.13%, 2.08%, 2.28%, 2.11%) has increased its proportion towards the value of economic activity while Hungary remained more or less stable (1.49%, 1.50%, 1.87%, 1.64%, 1.37%, 1.46%) and Portugal increased rapidly from 0.27% in 2007 to 1.63% in 2009 and maintain this ratio, with a high point in 2010 (2.18%), falling back somewhat in 2011 (1.89%), and 2012 (1.8%).

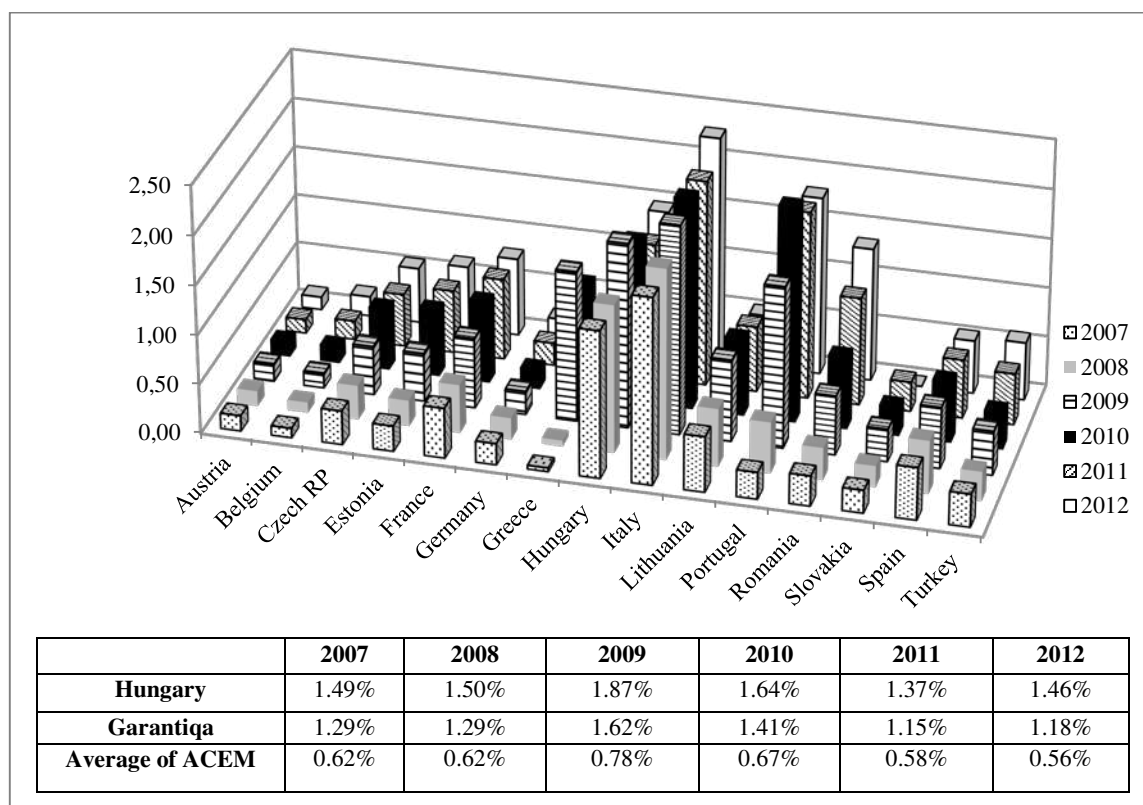


Figure 6. Outstanding guarantees to GDP in Europe in the period 2007-2012 (%)

Source: <http://www.aecm.eu>, <http://ec.europa.eu/eurostat> and own elaboration

All countries of ACEM used credit guarantees as a tool to avoid and overcome the financial crisis. In the year 2009, almost all numbers increased. The most significant increases were recorded in Italy (2.11%), Hungary (1.87%), Portugal (1.63%), Greece (1.51%). We can confirm that the credit guarantee system of Hungary – in which Garantiqa plays a major role – has an important impact on the stability and development of the Hungarian economy, especially to help the Hungarian economy overcome the financial crisis. The statistics above indicate that Garantiqa is one of the credit guarantee companies with effective operation. The ratio of outstanding guarantees/GDP of Garantiqa from 2007 to 2012 was always high: in 2007 it was 1.29%; 1.29% in 2008; 1.62% in 2009, 1.41% in 2010; 1.15% in 2011; and 1.18% in 2012. This ratio of Garantiqa is higher than 1% (of GDP) and higher than the average of the member countries of ACEM.

To deal with the financial crisis of 2008, the Hungarian government used the Rural Credit Guarantee Foundation and Garantiqa Credit Guarantee Co. Ltd as a policy tool to deal with the crisis. Since the beginning of the financial crisis, Garantiqa has made efforts to stabilize loan provision to enterprises. Garantiqa doubled the volume of the portfolio covered by counter-guarantees from 450 billion to 900 billion HUF in 2009.

Simultaneously, Garantiqa has simplified the risk management process, shortening the term of decision-making process, thus giving SMEs faster access to the capital. Furthermore, Garantiqa used the opportunities offered by the European Commission. Based on the approval of the European Commission, Garantiqa implemented a temporary state aid program. This program allowed Hungarian authorities to grant subsidies in the form of guarantees for investment loans, operating finance and financial leases concluded by 31 December 2010. During implementation of this program, market interest rates could be reduced up to 25% (as calculated by the European Commission). The guarantee covers up to 90% of the amount of mortgage loan or leasing and the guarantees may be granted to per SME up to € 2.5 million.

Another program was adopted by Garantiqa during the crisis, the New Hungary Current Assets Loan Program. This program provided grantee mortgage loans with interest rates lower than market rates. In addition, a program was implemented by the government to deal with the crisis, which was the Széchenyi Card program. This program provided a special credit card for loans at a discounted interest rate for micro-enterprises and SMEs. The program aimed to support small enterprises during the periods of financial crisis.

Thus, the government together with Garantiqa and other guarantee organizations has implemented support for

SMEs by providing credit guarantees, credit facilities, loans with discounted interest rate. All these policies protect enterprises against the impact of the financial crisis on enterprises and the economy, also providing them with favorable conditions for their development. This confirms that the credit guarantee system is an important policy tool of the government to deal with the financial crisis, to ensure economic stability and promote economic development.

In addition, the financial stability report of the National Bank of Hungary showed the role of credit guarantee activities on the budget 2009-2011. National Bank of Hungary analyzed the “entrepreneurial financing” and concluded that the impact of Garantiqa on the GDP was around 1% on an accumulative basis. The analytical approach is on a “What if basic”: what the GDP level could have been without the credit guarantee support to SMEs.

Table 7
The impact of credit guarantee activity on the budget

| Year | GDP (Million HUF) | Potential GDP decrease p.a. with no GHG-credit guarantee | Potential GDP decrease (Million HUF) | Drawdown of state counter guarantee in HUF million | Counter guarantee drawdown/est. GDP decrease, % | Counter guarantee drawdown /annual GDP, % |
|--------------|-------------------|--|--------------------------------------|--|---|---|
| 2009 | 25,626,480 | -0.40% | 102,506 | 16,894 | 16% | 0.07% |
| 2010 | 26,607,339 | -0.40% | 106,429 | 20,084 | 19% | 0.08 |
| 2011 | 27,886,401 | -0.30% | 83,659 | 13,675 | 16% | 0.05 |
| Total | 80,120,220 | - | 292,254 | 50,654 | 17% | 0.06 |

Source: <http://www.aecm.be/servlet/Repository/?ID=2141&saveFile=true>

The results of the analysis confirmed the following:

- The Hungarian State Budget between 2009-2011 was approximately 26,000 billion HUF.
- The GDP decrease in 3 consecutive years could have reached 293 billion HUF – stated the National Bank.
- The direct public cost of credit guarantee is drawdown of state counter-guarantee: an average of 0.06 of the yearly GDP.

(3) Provide benefits to the banks and financial institutions

The significance of the credit guarantee system as well as Garantiqa has been shown to help ensure the stability of financial markets. For banks and financial institutions, when loans have the guarantee of Garantiqa, it means that the risk of such loans will be reduced. In fact, in recent years some 10-12% of the volume of bank loans granted to SMEs has been secured with payment guarantees from Garantiqa. And for banks and financial institutions when loaning under a credit guarantee, under Basel II, it will reduce the burden on capital requirements of financial institutions. Basel II defines the qualification requirements which the mitigation tool must comply with to reduce the capital appropriation of the funding bank intermediaries, against the credit risk. So it enhances the operability of credit guarantee institutions; and the banks and credit institutions can reduce credit risk, the following capital appropriation and therefore the bank and credit institutions can expand the scope of loans to SMEs. It means that the credit guarantee system as well as

Garantiqa contributes to the expansion of lending by banks and financial institutions to SMEs.

According to research by the European Commission (Best Reports, 2006), Garantiqa was evaluated as a highly

successful practice. Garantiqa implemented a procedure of guarantee issued under special commitment with the banks. Garantiqa had been looking for a method to undertake guarantees in bulk, yet in a prudent, risk-sensitive way. With this way, cost savings are produced for the banks and Garantiqa. Also, the conditions of creditworthiness are defined for each specific product initiated by the partner bank. Garantiqa has applied software in decision-making in credit and the guarantee assessment, helping to save time for the partner banks and Garantiqa.

Another successful strategy of Garantiqa is to encourage banks and other financial institutions engaged in guarantee activities as the shareholders of Garantiqa. In 2013, the ownership structure of Garantiqa was as follows: 30.7% share of Government of Hungary; 46.84% share of Hungarian Development Bank and 22.46% share of commercial banks and other organizations. When the commercial banks and financial institutions are shareholders of Garantiqa, they will trust the guarantee activities of Garantiqa, simultaneously supporting and creating favorable conditions for Garantiqa in guarantee activities for SMEs.

In addition, Garantiqa also provides to banks other benefits such as up to date information about the risks of SMEs. Information specific credit of the borrowers in the process of working with Garantiqa will be collected and that information will be provided to a credit bureau and banks. This will create a large database of SMEs, and banks may use this information to assess the risk of SMEs, while minimizing the risk of lending to SMEs.

Garantiqa is a policy instrument of the government to support SMEs and the government indirect support Garantiqa through support interest for SMEs. This means that SMEs and banks engaged in lending to SMEs will be entitled to the benefits and minimize the risks due to having the guarantee of Garantiqa. Garantiqa has

affected the participation of banks in the market segment of SMEs with its policies and mechanisms. Garantiqa also effects its banking partners by continuing to implement the policy guarantees and help banks understand and be more aware about benefits of the market for lending to SMEs. When banks become aware of the benefits of this market segment, they will participate in targeted SME sectors and participate in this market segment. Thus, it will create competition among banks in this market segment. The banks will create better products and services at more attractive interest rates for SMEs. Since the competition will help financial market, the lending market will become stronger and increasingly more stable.

CONCLUSION

The main contribution of this paper is to show the impact of a major credit guarantee company on SMEs, the economy and the banking sector. Through the above analysis, this paper shows that Garantiqa Credit Guarantee Closed Co. Ltd has a significant impact in bringing many benefits to SMEs, such as help SMEs gain easier access to capital and low interest rates and increasing period of the loan, while also there are many programs for support to SMEs, especially in financial crisis. For the economy, a

significant effect is to stabilize the economy. In particular, Garantiqa was found to be an effective policy instrument to help the government to deal with and overcome the financial crisis. Besides, through promoting and supporting development of SMEs, Garantiqa has a further impact on the growth and development of the economy. This study also points out the impact of Garantiqa on financial institutions. Garantiqa shares the risk with the banks through credit guarantees, and also helps the banks to expand lending, reduce costs in the lending process and reduce their capital requirements.

This paper is focused on researching the effects of Garantiqa but has not extensively studied the entire credit guarantee system in Hungary. Further studies should expand the study of the entire credit guarantee system of Hungary. Due to time and data limitations, this study only analyzes the impact of the credit guarantee company on SMEs, the economy, the banking sector, but has not extensively studied the effects of credit guarantee company on other issues such as investment, employment, exports etc.

This study will be useful in helping managers, policy makers, banks, and even the government understand the importance of credit guarantee companies in the economy and their particular importance in the promoting development of SMEs.

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Risk Evaluation of Strategic Indicators

ISTVÁN FEKETE
RESEARCH FELLOW

e-mail: istvan.fekete@uni-corvinus.hu

ÉVA LIGETVÁRI
PHD STUDENT

e-mail: kkkleva@uni-miskolc.hu

VIVIEN AHMED
PHD STUDENT

e-mail: rekcont2@uni-miskolc.hu

SUMMARY

Most risk assessment methods can only be used if historical data are available, as they rely on statistical analysis to assess risks. However, such data is usually missing or imperfect. Of course, the probability of occurrence and impact of these risks should always be assessed (estimated) in a reliable manner. The method presented in the paper has been used in more than 50 different applications up to now. The aim of this paper is to demonstrate how the risks affecting the target values of different strategic indicators can be assessed using the developed method.

Keywords: risk analysis, risk evaluation, integrated risk management, strategic risk management

Journal of Economic Literature (JEL) code: D81

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INTRODUCTION

Corporate management increasingly demands strategic decision support and the use of scientific tools and methods of modelling uncertainties, thus creating a connection between decisions and their expected outcomes. To put it differently, corporations want to bear the risk of their decisions consciously in order to maximise their profits. For this reason, risk analysis and risk management are highly topical issues in corporate practice.

The literature of risk management introduces many different tools and methods to carry out risk analysis. However, as we studied the available sources we found that they were difficult to apply, as they were described in a language too difficult for practicing professionals to understand, and illustrative examples were rarely used. In other words, the methods recommended in specialised literature are generally not user-friendly. Rather than providing a scientific classification of the methods offered in professional literature or proposing their enhancement, the primary aim of this paper is to put forward a theoretically well-based risk analysis approach that is easy

to use in corporate practice. This method will be discussed in the next section.

Before explaining the detailed methodology, however, we feel it essential to define shortly the concept of risk management in order to facilitate a better understanding of the topic.

One of the essential features during a decision-making process is the existence of uncertainties. Uncertainty means that the probability of occurrence of a given future event and its consequences are not known exactly. Risk usually means the particular negative or positive consequences while the occurrence itself is uncertain, but its probability can be calculated or estimated (Görög 2008). In order to assess the risk, different risk sources and events should be first identified.

According to Hillson's approach, risk usually refers to uncertain events that may have negative or positive outcomes (Hillson 2002). The inherent level of a particular risk is determined by the likelihood and magnitude of associated events (Hopkin 2012).

RISK ASSESSMENT METHOD FOR SUPPORTING MANAGEMENT DECISIONS

In this section the different approaches how to identify, analyse, evaluate and treat the risks will be highlighted.

Interpretation of risk management

It is interesting to investigate how risk analysis and response work in practice if there are insufficient historical data available. In the risk management literature a number of methods can be found that are suitable for risk assessment. Most of them can only be used if there are historical data available, as they rely on statistical analysis to assess risks (see e.g. Jorion 1997). If someone would like to calculate exchange rate or interest rate risk exposure, for example, these statistical methods can be used if daily databases are available. But what is the situation if somebody would like to assess risks having an impact on the strategic goals of the company where he or she is working? An example could be to select the best strategic alternative by evaluating the yield/risk ratio for each alternative. In this case, there is rarely a daily database to use for assessing most risks. Of course, the probability of occurrence and impact of these risks should always be assessed (estimated) in a reliable manner.

There are also different approaches available to assess risks. These can be divided into two main categories: qualitative and quantitative methods. Qualitative methods are easy to use in practice, but reliability may not be possible to ensure. Quantitative methods may ensure the reliability of analysis, but usage of them requires a large amount of historical data.

It seems an obvious suggestion to produce input data for quantitative methods (e.g. Monte-Carlo Simulation) by using the many years' experience of participants attending a workshop to ensure reliable risk assessment. Of course, a special methodology is necessary for this, but it is worth to apply. The method presented below has been used in more than 50 different applications to date. The aim of this paper is to summarise the main steps of this method and to show how to use it in practice.

Risk management covers a systematic process of identifying, analysing, evaluating, responding to and controlling risk (Cooper & Chapman 1987; Chapman and Ward 2003), (PMI 2008). The risk management process for these steps is shown in Figure 1. The specialities of the process will be briefly summarised below even for a situation where historical data are missing or inappropriate.

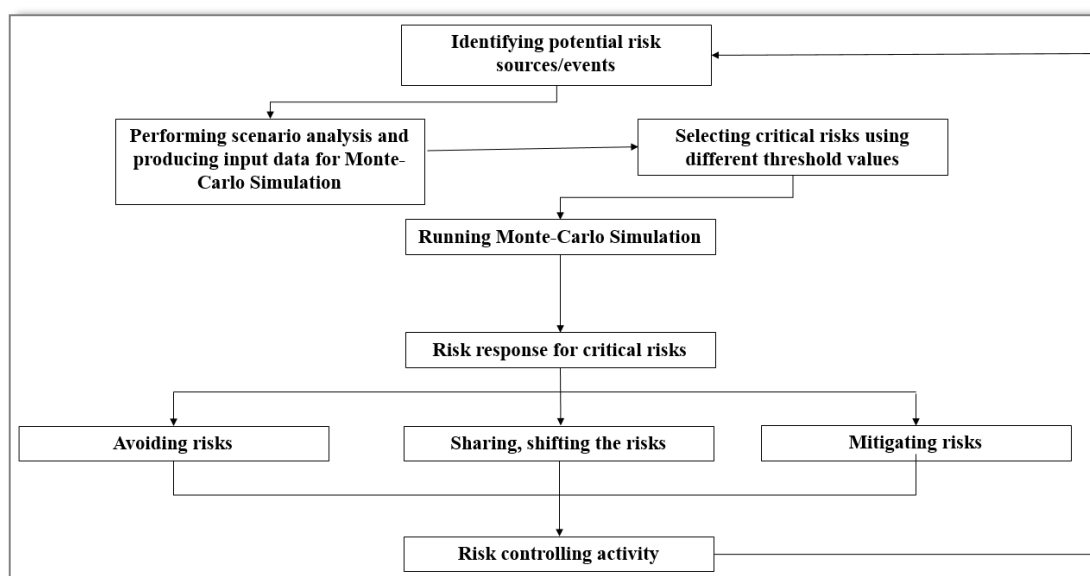


Figure 1. The suggested risk management process

Source: created by István Fekete

Identification of risk sources and events

The first task is to identify risk sources/ events in a structured form. Several techniques have been proposed for professionals to identify risk sources/events (Loosemore et al. 2006; Ohtaka & Fukuzawa 2010).

For the method in question, brainstorming is needed for executing the task. Workshops lasting a few hours or even days, depending on the nature of the task, can also be

helpful. The composition of participants is important, since the results are influenced to a great extent by the presence or absence of experts having relevant knowledge.

In case of inappropriate historical data a pre-made database can be helpful to enhance the identification of risk factors (de Bakker et al. 2010; Bannerman 2008). This database can be customised according to the needs of particular organisations. There are different lists for this available in the risk management literature (see for example Summer 2000; Hartman & Ashari 2002; Chow & Cao 2008; Lind & Culler 2011).

Quantitative risk assessment

Identification of risk sources and events is followed by the step of quantifying the probability of their occurrence and impact. This paper focuses on how to use the developed method for defining input parameters of the Monte-Carlo simulation (Hertz 1964).

The first task is to delineate the scope of the analysis and to define the elements of the analysis target values. The next step is to identify and assign potential risk sources and events to each element of analysis. The identification is done by experts at a workshop.

After the identification is completed, a maximum of four different scenarios (Watchorn 2007) will be assigned

to each identified risk source and event. The next task is to estimate the subjective probability of occurrence and impact of each scenario. This is done by experts at the workshop using their many years of experience. It is important to note that the sum of the subjective probability of occurrence of the maximum four scenarios cannot exceed 100%.

Following that, the existence of interrelation (if any) among the different risk sources and events must be assigned to one cash-flow element (Hunyadi et al. 1993). If found, its direction and intensity must also be investigated. (The direction is positive if an increase in one variable's value can cause another variable's value to increase and negative if a decrease in one variable's value can cause another variable's value to increase. The intensity can be measured by a correlation factor between -1 and 1 (Hunyadi et al. 1993)). To answer this question, experts' estimation should be used. Empirical experience shows that it can be assumed that the value of the correlation measuring the intensity between two probability variables can be maximum ± 0.6 in the case of strongest intensity. So the experts attending the workshop only have to decide whether the intensity between two variables is strong, medium or weak using their experience. In this way they can estimate the value of correlations ranging from -0.6 to 0.6. Of course, it is not possible to calculate exact correlation values in this way. But it should be remembered that in this case there are insufficient historical data available to use statistical methods for this task.

The next task is calculation of the expected value and standard deviation of each element using the results of the scenario analysis. These will be the input data for the Monte-Carlo Simulation. The expected value and standard deviation can be used for selecting critical risk sources and events as well. In our understanding not every risk should be treated, anyway. This is because the cost of treatment can be higher than the cost incurred from the occurrence of the risk. To ensure the best efficiency of treatment activity it is vital to select the critical risks which should be treated in any way. To do this, a special rule can be used. According to this rule, a risk is critical if the value of

relative deviation (ratio of standard deviation/expected value) is higher than a predefined threshold value. There has been no exact equation to calculate the limit of any threshold value so far. It can only be defined by using the experience of a risk analyst. In this paper we will show how to define the threshold values with regard to a case study.

If historical data are missing or inappropriate, the way suggested above can help to increase the chance of selecting the best suited probability distribution curve, mean value, and standard deviation belonging to it. This is the reason for performing a scenario analysis first and running Monte-Carlo Simulation only after finishing the scenario analysis.

Selection of dependent probability variables is the next task. The change in value of an independent probability variable can cause the change of value of a dependent variable. When all input data are at our disposal, Monte-Carlo Simulation is ready to run. Once the predefined number of iterations has been reached, the probability distribution of net present value with all characteristic statistical values (mean value, standard deviation, range, etc.) can be produced. The probability distribution can also contain the target value, so it is possible to compare the results of calculation before and after risk analysis. This is done with the support of any computer program for risk analysis found on the market (e.g. Oracle Crystal Ball, Palisade @Risk or Sigma Integrisk).

Steps of risk evaluation

Risk evaluation requires creating a high-level network diagram, including:

- the exact definition of activities,
- definition of the duration of activities,
- logical relationships between activities and
- detailed resource and budget allocation (Grey 1995).

These data are the target values (values before risk analysis). Each project activity will work as independent probability variables during the Monte Carlo Simulation.

The next step is to identify and assign potential risk sources and events that can have an impact on the duration and/or cost of every single activity (dependent probability variables) originally calculated. When identification is completed, the probability of occurrence and impact of each risk source/event will be estimated by scenario analysis as above (Cleden 2009). The interrelation among risk events and independent probability variables (duration and/or cost) should be analysed (Nakatsu & Iacovou 2009).

This is followed by selecting the probability distribution of the duration/cost of each activity with the use of the results of scenario analysis. In practice, the most frequently occurring distributions are the beta, gamma, triangle, lognormal, and normal distributions (Evans et al. 1993). After this, the parameters (expected value, standard deviation) characteristic of the given distribution should be

calculated. The value of the probability of occurrence of activities after junctions in the network diagram should be estimated. It is important to keep in mind that the sum cannot exceed 100% (Grey 1995).

When all input data are available, the simulation process can be started. The length of the critical path and/or total cost of the project are calculated from a large amount of random data obtained from each probability distribution of the duration/cost of every single activity. This can be accomplished by any risk analysis programs listed above. After reaching the predefined number of iterations, the probability distribution of the critical path and/or total project cost can be produced (Grey 1995).

Response to the risks

The risk management process has to formulate and execute risk response actions for critical risk sources and events selected previously. Risk response could have the aim of avoiding, sharing, transferring or accepting a risk by means of defining a risk response programme (Harris 2009). It is important to consider the following aspects when formulating a risk response programme:

- The elements should have a quick-win characteristic, i.e. should be applicable quickly and at a reasonable cost. Reasonable costs mean lower cost than in case of occurrence of the risk event.
- Risk response actions should be measurable during actualisation. In case of an investment project it may be possible to increase the chance to finish the project on time and within the budget or to ensure the targeted project return. In other words, the execution of suggested risk response actions should move the measured value closer to the target value (value before risk analysis).

It is important to assign a risk owner to the proposed actions. A risk owner is a person or an organisation that is responsible for responding to a risk.

Now we will present different risk response actions (Balaton et al. 2005):

Risk avoidance – basically this covers those actions that are aimed at avoiding the occurrence. It is used when risk sources/events often occur and the likely impact is high (Pataki & Tatai 2008). An example of this could be the integration of check points, including internal regulation.

Risk mitigation – this could be aimed at minimising the probability of risk occurrence by preventing the risk from occurring. A good example can be lobbying in order to influence lawmakers. Another approach is for the company to prepare different actions in order to influence the impact, in many cases to increase the impact of positive risk events. A good example is business continuity planning.

Transferring or sharing risks – this means finding a partner who consciously or unknowingly assumes at a certain price losses generated from potential dysfunctions. A typical case of risk transfer is

insurance, but hiring an external contributor to implement a project could also be an example (Görög 2008).

Risk acceptance – In this case, the risk cannot be avoided or transferred, or the likely impact is out of proportion with the costs of responding to it. This implies that management bears the magnitude of the risk consciously.

Risk controlling

The final step of the risk management process is performing risk control that covers updating the dataset, follow-up actions, and plan-fact analysis.

Risk management should be considered as a snapshot at a given moment. But it could happen that the kind of information that basically influences the results of analysis is found the next day. In this case, it is worth redoing the whole exercise. Of course, now the analysis can be done quickly, since it only consists of the transfer of the results from recording and assessing the new risk arising from new information. It could change the list of critical events that could modify the risk response actions.

The second element of control activity is following the risk execution program, which is based on risk response proposals. This could be considered as classical control activity and in the course of this the following tasks should be solved: overview of the situation, impact analysis, modifications based on impact analysis, ordering and publishing the modifications and the execution of modifications.

The third component of control is performing a plan-fact analysis after finishing the execution of the risk response actions. The aim of the analysis is to compare the post-program status with the pre-program status. The plan-fact analysis means an input for cost-benefit analysis (Rédey 2012), which can measure the effectiveness and efficiency of the risk management activity.

RISK EVALUATION IN THE CASE OF STRATEGIC INDICATORS

The University of Miskolc has prepared and approved an Institutional Development Plan that includes the strategic goals and the related performance indicators (in harmony with the Balanced Scorecard – BSC indicators) annually for a five-year period. Achieving the target values of the five-year period may be influenced by various strategic risks, positively or negatively. It is essential for the university to identify and understand the risks that may have any effect on these indicators. Based on the identified risks, strategic actions can be developed and performed in order to control the operation in accordance with the set objectives. It should be noted that the challenge is not a single intervention; continuous (regular) control is necessary. The process is summarised in Figure 2.

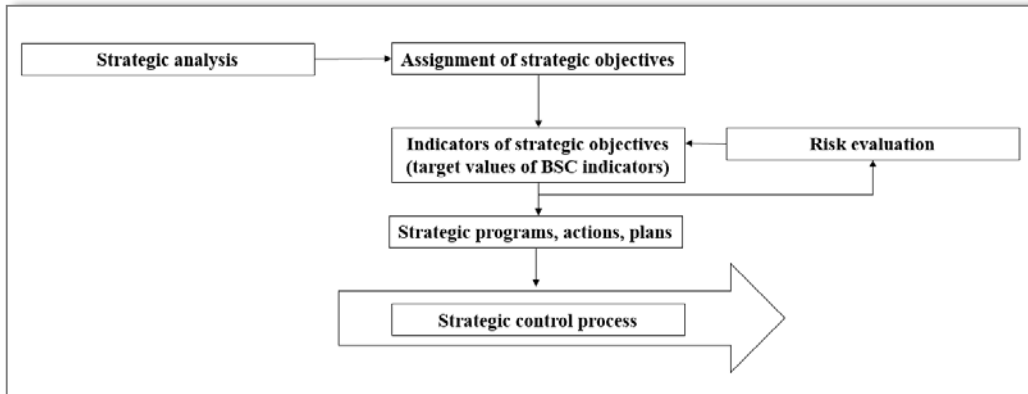


Figure2. Strategic control process
Source: created by the authors

The details of risk evaluation are presented in Figure 3.

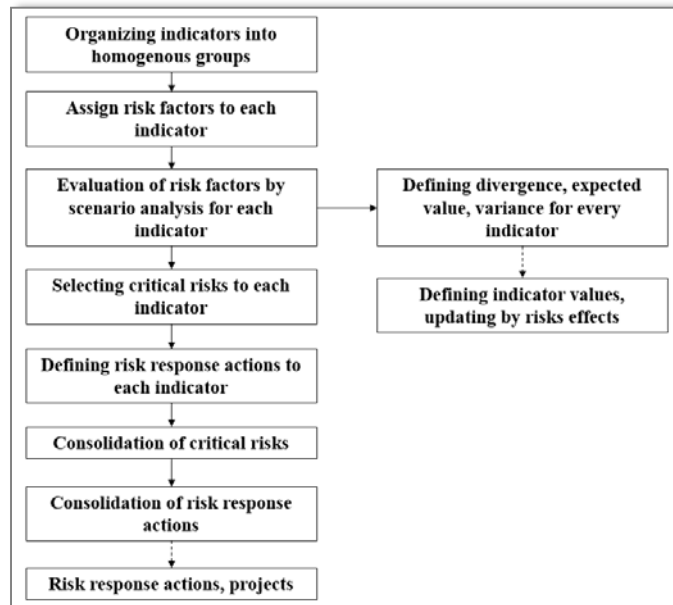


Figure 3. Process of risk analysis of strategic indicators
Source: created by the authors

The content of the risk analysis process using the methodology in the previous section is as follows. A presumption is that the strategic indicators are available.

The initial step is to organize the indicators into homogeneous groups. The aim of grouping is to find the strategic issues that may be influenced by similar risk factors. Homogenous groups must be the results of teamwork. The experts of the university perform a workshop that allows the proper teamwork. In the beginning external experts were involved in order to learn the methodology and keep focus on the content. Of course, the list of indicators in a group is not set in stone, the relevant strategic indicators may be changed. Review of

the groups must be performed by the internal experts regularly, at least annually.

The next step is to designate the risk factors of the strategic indicators within each group. There are various sources that can be used for supporting the assignments. In addition to expert estimation, historical data and literature sources should be taken into consideration. Establishing a comprehensive risk database will significantly increase the effectiveness of this step. Proper designation of risks factor is essential because the probability and the impact can only be assessed properly in this way. If a risk factor is assigned to more than one strategic indicator, it must be evaluated separately by each indicator because the impacts may be different. Table 1 shows an example of assignment.

Table 1

Assignment of risk factors to indicators

| Indicator | Risk factor | Description of the risk factor |
|---|--|--|
| Rate of students admitted to the University of Miskolc compared to all students gaining admission in the recruitment process of the given academic year | Legal policy changes / Changes in government funding quota | Changes in the government funding quota will influence the number of students admitted to the University of Miskolc compared to all students admitted in the country. Natural sciences and engineering studies have a higher quota, while the quota of law and economic studies is reduced. Minimum limits of admission scores may be changed. |
| | University's reputation | Improving the university's reputation may attract potential students, so this can influence the number of applications (Rate of students admitted to the University of Miskolc compared to all students gaining admission in the recruitment process of the given academic year) |

The task of risk factor evaluation is supported by a scenario analysis performed in a workshop. The experts of the University of Miskolc reviewed the factors one by one. Possible impacts are summarised in the description of the risk factor based on the methodology described above. It must be noted that there is a simplification in the process: interaction between the risk factors is out of scope. It is

hypothesised that the risk factors are independent from each other. We know that this is not always true, but the lack of historical data does not allow an estimation of interrelations with an acceptable level of reliability. The high failure ratio of the estimation does not help the proper evaluation but needs huge efforts. Table 2 shows an example of scenario analysis.

Table 2
Example of scenario analysis

| | Scenario | Probability | Impact (difference from target value, %) | Justification for the estimation |
|----|---|-------------|--|--|
| 1. | Demand for bachelor courses is as planned | 80 | 0 | In the given period the probability of achieving the related target values is high. Statistics of previous years: 2012: 6,275 applicants, 2,650 admitted (1,899 with government funding). Number of first-place applicants was 3,389. 2011: 8,003 applicants, 3,435 admitted (2,149 with government funding). Number of first- place applicants was 4424. |
| 2. | Increasing demand for bachelor courses | 15 | 5 | There is a competition for places in technical faculties, especially the Faculty of Mechanical Engineering and Informatics, also in the Faculty of Economics. Demand for courses of the Faculty of Law is influenced by the distracting effect of the University of Debrecen. Health care courses have a competition for places as well. Based on the data of felvi.hu approx. 50–60% of these applications are first-place applications, so this tendency may further increase. |
| 3. | Reduced demand for bachelor courses | 5 | -5 | Based on the forecasts there is a low probability of decreasing demand for the bachelor courses. There is a decline to be seen in the number of applicants in comparison between the years 2011 (8,003) and 2014 (4,937), especially in the number of applicants with government funding (from 2,149 to 1,899), so a general decline may be indicated if the number of fee-paying students will not compensate. |

Calculating expected values and standard deviation based on the results of scenario analysis allows to find the risks being treated. Table 3 summarises a sample result.

Table 3

Sample results of scenario analysis

| Indicator | Risk factor | Description of the risk factor | Expected value of difference (%) | Relative deviation (%) |
|---|--|--|----------------------------------|------------------------|
| Rate of students admitted to the University of Miskolc compared to all students gaining admission in the recruitment process of the given academic year | Legal policy changes / Changes in government funding quota | Changes in the government funding quota will influence the number of students admitted to the University of Miskolc compared to all students admitted in the country. Natural sciences and engineering studies have a higher quota, while the quota of law and economic studies is reduced. Minimum limits of admission scores may be changed. | 23.5 | 25.70 |

After making the scenario analysis the experts chose the risk factors which are critical to manage in order to achieve the university's strategic goals through meeting the target values of strategic indicators. The methodology requires defining tolerances for the expected values and dispersions calculated during the scenario analysis. Critical risk factors must be managed. A risk factor is

considered to be critical if it exceeds any of these tolerances. The university experts use a tolerance limit 10% for the expected value and 200% for the relative deviation (standard deviation divided by the expected value of difference). Table 4 shows examples of critical risk factors.

Table 4
Examples of critical risk factors

| Indicators | Critical risk factor | Description of the risk factor |
|---|--|--|
| Rate of students admitted to the University of Miskolc compared to all students gaining admission in the recruitment process of the given academic year | Legal policy changes / Changes in government funding quota | Changes in the government funding quota will influence the number of students admitted to the University of Miskolc compared to all students admitted in the country. Natural sciences and engineering studies have a higher quota, while the quota of law and economic studies is reduced. Minimum limits of admission scores may be changed. |
| | University's reputation | Improving the university's reputation may attract potential students, so this can influence the number of applications. (Rate of students admitted to the University of Miskolc compared to all students gaining admission in the recruitment process of the given academic year.) |

The next step of risk evaluation is elaboration of (strategic) risk management actions. Besides the description of the actions, this should include both the implementation deadline and the designation of the

individual responsibilities. Planning of actions is also performed as a part of the risk management workshop. A proposed risk management action is shown in Table 5.

Table 5
A proposed (strategic) risk management action

| Indicator | Risk factor | Risk management action | Deadline | Person in charge |
|---|--|---|------------|------------------|
| Rate of students admitted to the University of Miskolc compared to all students gaining admission in the recruitment process of the given academic year | Legal policy changes / changes in government funding quota | Lobbying to keep the regional knowledge centre, especially focusing on the conformance to the official requirements related to the admission quotas | Continuous | Vice-rectors |

In addition to the numerical analysis and the content of the tables above, an evaluation summary is needed that explains the main results and the relationship between the particular parts and figures. An important goal of this task is the consolidation of the critical risks. In practice, consolidation means the determination of core risk factors, i.e. risk factors that are different from each other in content. A prerequisite for being a core risk factor is that it is assigned to at least one strategic indicator by the university experts. Consolidation should also:

- summarise the risk factors by flagging the indicators they are assigned to,
- flag the critical risk factors by strategic indicators. Eventually, the flagging designates the risks that must be managed. Table 6 shows an example of a consolidated list.

Table 6
Consolidated list of critical risk factors

| Critical risk factor | Related strategic indicators |
|--|--|
| Legal policy changes / Changes in government funding quota | Rate of students studying in a given course at the University of Miskolc compared to students in the course nationwide |
| | Changes in the number of partners involved in practical education |
| | Utilisation of R&D&I infrastructure |
| | Level of R&D&I orders |
| | Number of PhD students |
| | Number of Hungarian and international publications and the ratio of them compared to the number of employees in education/research jobs |
| | Number of scientific publications and four-year target values of increment by institutional (faculty) level |
| | Number of Hungarian and international monographs and professional books and the ratio of them compared to the number of employees in education/research jobs |

It is necessary to consolidate the risk management action based on the consolidation of risk factors. The results shall consider the suggestions (strategic risk management action plans) of the university experts. The output of consolidation is a report for decision makers that includes in a comprehensive way the followings (an example is shown in Table 7):

- consolidated risk management actions,
 - personal and/or department level responsibilities,
 - expected deadlines for performing the actions.
- Results of consolidation should be uploaded to the databases of the university's information management system.

Table 7

Consolidated risk management action

| Risk management action | Indicator / risk factor | Person in charge | Deadline |
|---|---|------------------|------------|
| Lobbying to keep the regional knowledge centre, especially focusing on the conformance to the official requirements related to the admission quotas | Rate of students studying at the University of Miskolc compared to students nationwide / Legal policy changes / Changes in government funding quota | Vice rectors | Continuous |
| | Changes in the number of partners involved in practical education / Legal changes | | |
| | Utilisation of R&D&I infrastructure/ Legal changes | | |
| | Level of R&D&I orders / Legal changes | | |

As a result of scenario analysis, annual information is available about the expected values and standard deviation of difference from target values of strategic indicators. This is followed by a comprehensive evaluation of each risk factor, including the calculation of a total deviation from the target values. These will allow us to calculate adjusted target values of the strategic indicators. Target values before the risk analysis process should be adjusted by the calculated risk characteristics (expected values and standard deviation). Ultimately, the

adjusted target values show the deviance from the institutional development plan. Higher differences in the values show the higher importance of risk management actions in order to enhance the possibility of achieving the original target value. Adjusted target values should also be uploaded to the databases of the university's management information system. Table 8 shows examples of adjusted target values.

Table 8
Strategic target values adjusted by the results of risk analysis

| Indicator | Target value in the Institutional Development Plan (2014) | Sum of expected values of total difference from target values in Institutional Development Plan (%) | Expected value of indicator | Effect of standard deviation on the indicator (deviation caused by the risk) (%) |
|--|---|---|-----------------------------|--|
| Rate of students studying in a given course at the University of Miskolc compared to students in the course nationwide | 3.53% | 35.75 | 4.79% | 32.85 |
| Ratio of first-place applicants compared to total applications | 57.76% | 7.45 | 62.06% | 10.79 |

CONCLUSIONS

Systematic risk management supports institutional decision making. The systematic approach requires both a clear methodology of calculations and a proper workflow adapted to the organisational characteristics. The paper summarises the solution of the University of Miskolc. The main experiences and conclusions based on the pilot run of the system are the following:

- Establishing risk identification and analysis as a supporting tool of strategic planning helps to understand the influencing factors of strategic objectives and to work out proper actions in order to increase the chance of fulfilling these objectives.
- Realisation of the expected benefits is only achievable by performing the risk management actions, so attention must be given to assigning granting proper authority and responsibilities.
- It is important to upload the results to the databases of the management information system that require

the necessary integration development actions (including changes in regulations and technical-programming development).

- Deep and intensive risk analysis makes the updating processes within the planning period easier. Due to the continuous changes in internal and external environment of the university it is necessary the modelling of the influencing factors that is easier in case of the proper initial analysis.
- Detailed justification and (if achievable) data support for the results of risk analysis enhances its credibility and acceptance.

The pilot evaluation is being carried out as a part of the TÁMOP-4.1.1.C-12/1/KONV-2012-0001 project. Long-term utilisation requires the organisational integration of the process and the methodological elements, including harmonisation with the management information system and an up to date risk management regulation. Furthermore, decision makers must recognise the benefits and accept the results.

A further challenge in system development is improving the accuracy of the expert estimation. We plan to carry out action research about further strategic influencing factors of the strategic position of the University of Miskolc. Including more factors in the risk analysis will allow us to draw up a more sophisticated map of risks and to evaluate the expected effects of the factors in a more detailed way. Our goal is to build up a structure of factors that is ready for running a Monte-Carlo simulation, which could give more accurate results.

Acknowledgement

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An Empirical Study of Audit Expectation Gap in Hungary

JUDIT FÜREDI-FÜLÖP

ASSISTANT LECTURER

e-mail: judit.furedifulop@gmail.com

SUMMARY

The audit expectation gap has preoccupied the finance and accounting profession for a long time. Considerable research has been conducted into this issue and attempts have been made to provide an accurate definition of the audit expectation gap, model this concept and assess the possibilities of its narrowing. Also, a number of studies investigate whether there is an audit expectation gap in several researched regions. The objectives of empirical studies on the structure and nature of the audit expectation gap aim at recognising the actual existing and expected roles and responsibilities of auditors as well as identifying the factors, that contribute to the existence of the audit expectation gap in a society.

The findings of international research on the audit expectation gap cannot directly be applied to a particular country without further investigation. Nor can they be applied in Hungary. This is because economic, social and legal factors of a specific country have a considerable impact on research results and might even distort them. Therefore, the objective of this research is to identify the causes and the typical composition of the audit expectation gap in Hungary in order to enable us to find appropriate combinations of solutions for narrowing the expectation gap.

Keywords: financial statements, audit, audit expectation gap

Journal of Economic Literature (JEL) code: M420

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INTRODUCTION, RESEARCH QUESTIONS

The existing literature on the audit expectation gap in Hungary is surprisingly scarce. However, it is evident from the international literature that research into similar issues has been conducted in several countries. Therefore, the primary objective of this research is to identify the causes and the stereotypical nature of the audit expectation gap in Hungary after interpreting and evaluating the results of previous research studies, with the aim of finding appropriate combinations of solutions for narrowing the expectation gap.

In order to gain a deeper insight into this topic, the author of this study conducted primary and secondary research in this field. The secondary research involved investigating the existing Hungarian and predominantly foreign literature on the audit expectation gap with the aim to have a better understanding of the theoretical background of empirical studies.

In the primary research a questionnaire survey was conducted. The target groups were groups involved in audit, namely groups preparing financial statements, auditors and beneficiaries.

LITERATURE REVIEW

A number of studies have been conducted on problems related to audit expectations arising from the difference between expectations of auditors and users of financial reports, which according to the existing literature was identified almost one hundred years ago. However, the term was introduced to the audit context and has been used only for the past twenty years or so (Humphrey et al. 1992). The professional literature considers that it is fundamental to provide an appropriate definition of the audit expectation gap, to determine its nature, structure and causes as well as to identify the possibilities for its narrowing. Also, several studies have already investigated the evidence for existence of the audit expectation gap in a specific society.

The concept of expectation asymmetry in audit was first formulated by Liggio (1974), who defined it as the difference between the levels of 'expected performance as envisioned by auditors and by users of financial statements'. In 1978, Liggio's definition was further extended by the Cohen Commission on Auditors' Responsibilities (CAR), which defined it as a gap, which 'may exist between what the public expects or

needs and what auditors can and should reasonably expect to accomplish' (Cohen Commission 1978, p..xi). Porter considered Liggio's and CAR's definitions to be too narrow because they failed to realise that auditors might not accomplish the expected performance level (Porter 1993), or the level they can or should reasonably expect to accomplish, as defined by CAR. Based on the empirical research, she preferred and suggested adopting the term 'audit expectation-performance gap' because of the recent criticism of auditors. She defined the gap as the difference between society's expectations of auditors and society's perceptions of auditors' performance. Porter distinguished two major components of the audit expectation-performance gap. First, the *reasonableness gap*, which is

the difference between what the public expects auditors to achieve and what they can reasonably be expected to accomplish. Second, the performance gap, which is the difference between what the public can reasonably expect auditors to accomplish and what auditors are perceived to achieve. The performance gap was further subdivided into deficiencies in standards (regulations), that is, the difference between what can reasonably be expected of auditors and auditors' existing duties and auditors' deficient performance, that is, the difference between the expected standard of performance of auditors' existing duties and auditors' perceived performance (Porter 1993, p. 2).

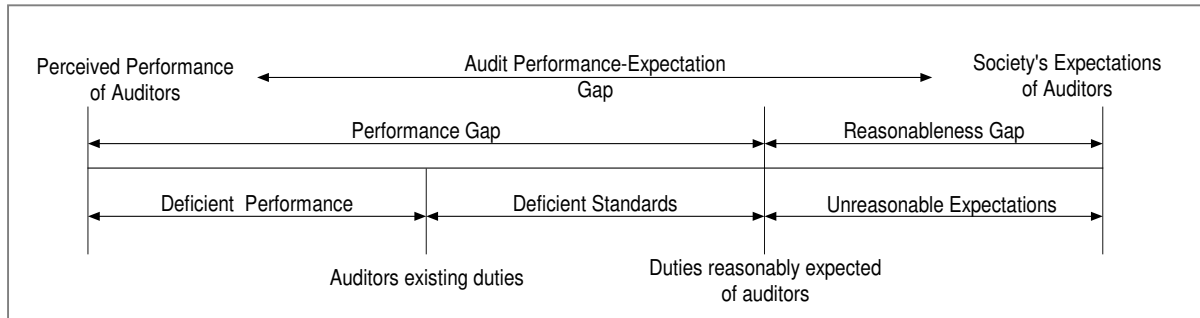


Figure 1. Structure of the audit performance-expectation gap
Source: Porter1993, p. 2.

The definition given to the audit expectation gap by scientists has undergone considerable evolution over time. However, the Porter definition was considered to be the basic definition and research into the gap shifted from its definition towards the nature, structure and cause of the audit expectation gap, as well as towards identifying the possibilities for narrowing the gap.

Tricker (1982) viewed the audit expectation gap as the result of a natural time lag in the auditing profession, which identified and responded to continually evolving and expanding public expectations. Other authors argued that the audit expectation gap is the consequence of the contradictions in a self-regulated audit system operating with minimal government intervention (Hopwood 1990; Humphrey 1991; Humphrey *et al.* 1992; Sikka *et al.* 1992). Dejong and Smith (1984) and later Hooks (1992) emphasized that the profession's refusal to perform fraud detection duties had also contributed to the expectation gap.

According to the opinion of the accounting profession and Epstein and Greiger's (1994) examination, one of the causes of the audit expectation gap is that the public fails to measure and understand the nature and limitations of accounting. Therefore, they place the responsibility on the public.

The expectation gap was attributed to deficiencies in auditors' performance and audit standards by Humphrey *et al.* (1993) and Porter and Gowthorpe (2004), and to users' misunderstanding and misinterpretation of the audit function and auditors' role and consequently, unreasonable and unrealistic expectations of auditors by Pierce and Kilcommins (1996) and Boyd *et al.* (2001), as well as McEnroe and Martens (2001).

Based on the earlier research results, Salehi (2007) summarized some components of the causes of the audit expectation gap as follows:

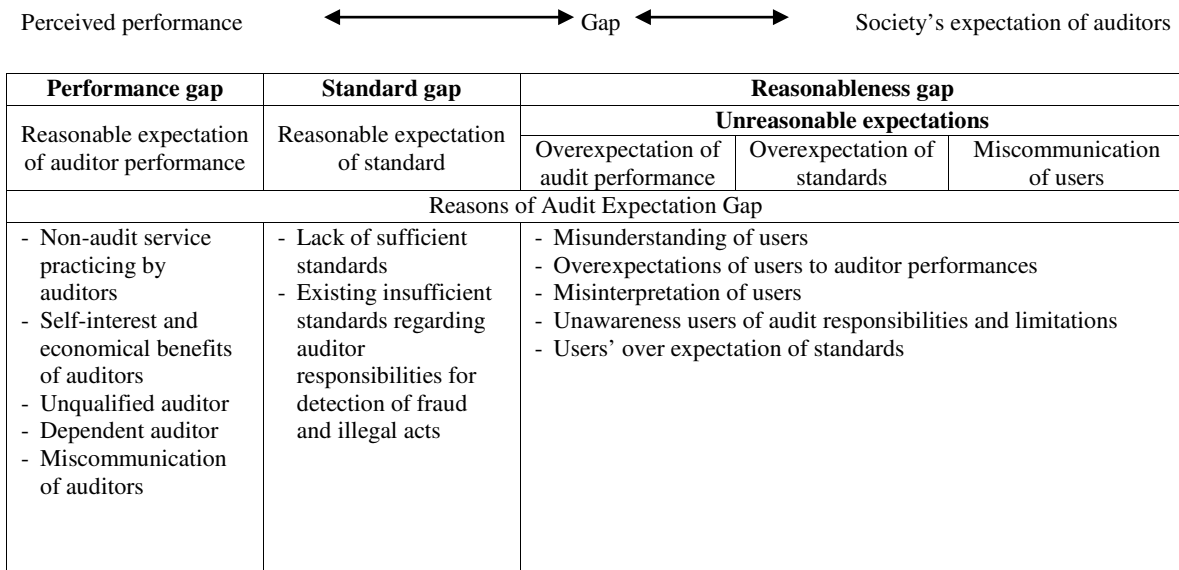


Figure 2. Reasons for audit expectation gap
Source: Salehi, 2007

As can be seen from the overview of the literature available on the audit expectation gap, researchers have already identified a number of causes for this gap while conducting their research into this issue. Although valid general conclusions cannot be drawn from the obtained research results because of the economic, religious and regulatory differences and derogations in specific societies, some typical, common components can be identified.

Research results have confirmed the existence of the audit expectation gap in the United States of America, the United Kingdom, Australia, New Zealand, the South African Republic, Singapore, Denmark, Malaysia, Thailand, The People's Republic of China Egypt, Lebanon, South Arabia, India, Iran, and the Netherlands. The audit expectation gap has been proved to exist in several societies (Hassink et al. 2009; Haniffa &Hudaib 2007; Sidani 2007; Dixon et al. 2006; Alleyne &Howard 2005; Fadzly &Ahmad 2004; Lin &Chen, 2004; Best et al. 2001; Frank et al. 2001; McEnroe & Martens 2001; Epstein &Geiger 1994; Lowe 1994; Humphrey et al. 1993). Several studies have investigated specific aspects of the audit expectation gap, for instance, fraud detection.

The review of the prior literature reveals that after identifying the typical components of the audit expectation gap, the studies conducted recently in different economic and political environment and in various countries and societies have focused on the extent and the composition

of the gap. Since the studies have found evidence of an expectation gap in different countries, we can speak of a global audit expectation gap.

Most researchers agree that the audit expectation gap encompasses several issues. The greatest emphasis is laid on the auditor's role and responsibility (Porter 1993, Fadzly & Ahmad 2004, Dixon et al. 2006), the nature and the meaning of the message communicated by an audit report (Monroe & Woodliff 1994; Gay et al. 1998) and the auditor's independence (Sweeney 1997; Lin & Chen 2004; Alleyne et al. 2006).

Identifying components of the audit expectation gap is critical, because problems arising from different components require different solutions. Possible tools to reduce the gap can be assigned only after the audit expectation gap and its components in a specific society have been identified. The expectation gap usually arises from a combination of deficiencies in a number of areas (too high expectations, misinterpretations, deficient performance, etc.). Steps are to be made in all the areas concerned because the differences in expectations remain unchanged until efficient and timely solutions are provided.

Figure 3 summarizes possible tools that have been identified on the basis of research results for narrowing some components of the audit expectation gap.

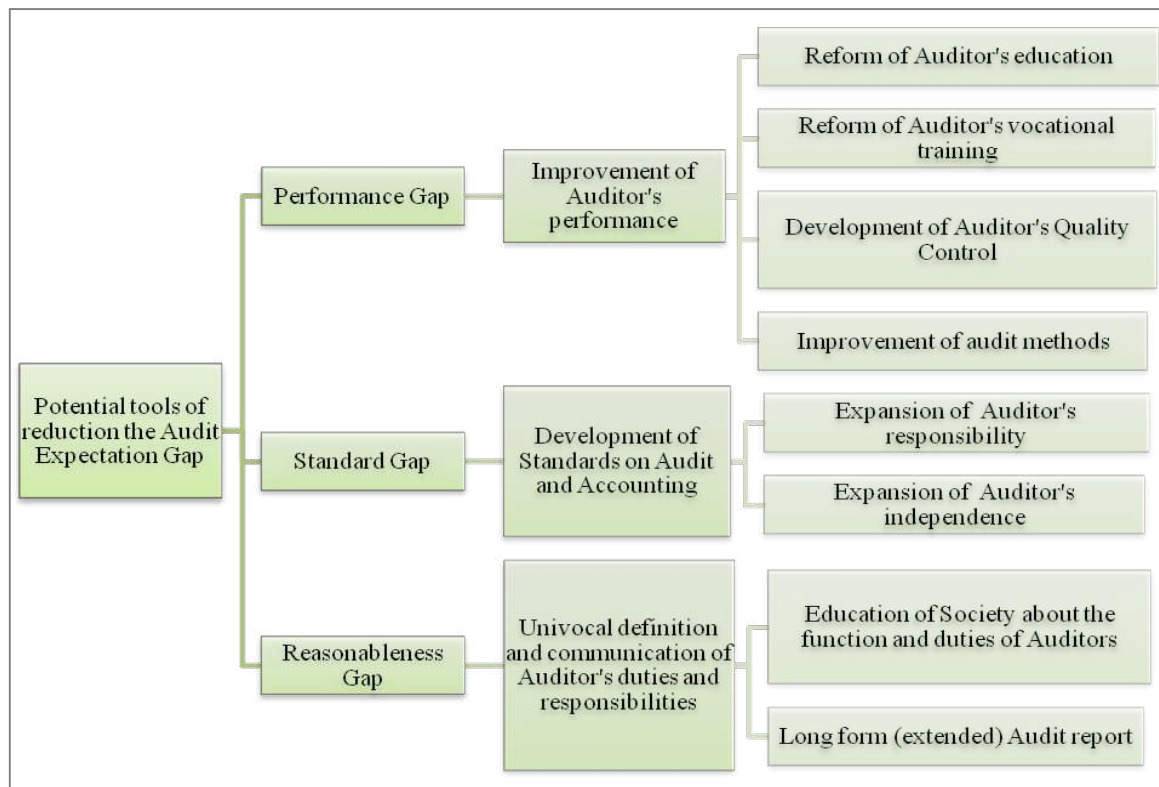


Figure 3. Potential tools for reducing the Audit Expectation Gap based on prior research results

Source: author's own elaboration based on the existing literature

Before conducting empirical research, the author of this study reviewed results of empirical research into the nature and structure of the audit expectation gap as well as into possible tools for its narrowing. The results of previous research studies provided insight into the methods applied and social peculiarities of the research database. The prior research was performed with the specific objective of forming an adequate conceptual framework for the author's primary research, to identify the most typical components of the audit expectation gap, and to consider tools for narrowing this gap on the basis of the past research findings.

The literature review reveals that Porter's theory seems to be the most elaborated. The objective of this study is to demonstrate the validity of the amended version of the Porter's audit performance-expectation gap model in Hungary. Apart from performance and reasonable causes, improper interpretation of audit-specific terms by groups involved in audit also contribute to the audit expectation gap. The author of this study assumes that these groups misinterpret the audit results and the audit standards that auditors follow during audits.

DATA COLLECTION AND METHODS

The empirical research described in this study is of exploratory character since its main objectives were to gain a deeper insight into an unmapped field, provide bases for future analyses and develop appropriate procedures. As for the time period, the research attempted to record the state of audit in an economic, social and regulatory

environment in Hungary at the time when the research study was conducted, which was in 2013. The groups involved (see below) were surveyed and their opinions were summarised. Therefore, this research can be considered cross-sectional. In order to support the stated hypotheses in the current study, active players of economic life were invited to provide the information on these issues. A thematic-structure questionnaire with a set of questions related to audit was compiled. Note that there is no ideal way of determining all the questions that could be relevant to a survey of the audit expectation gap (Troberg & Viitanen, 1999).

The primary source of this empirical study was generated from a well-structured questionnaire, which was sent electronically to participants. The survey instrument also included a paper questionnaire with the aim to reach the widest possible target groups. The questionnaire consisted of two parts. Part 1 of the questionnaire contained questions related to demographic data and general questions to elicit information such as respondents' age, level of education and their feelings about audit. Part 2, the main part of the questionnaire in terms of content, gathered information about auditors' functions, tasks, responsibilities and independence. The questions were compiled to support the stated hypotheses.

The reviewed literature revealed that while conducting analyses of the audit expectation gap, researchers surveyed a wide range of users of financial statements such as investors (Fadzly & Ahmad 2004), bankers (Best et al. 2001), financial directors (Haniffa & Hudaib 2007), senior managers (Alleyne & Howard, 2005), investment analysts (Haniffa & Hudaib 2007; Humphrey et al., 1993), educators (Lin & Chen, 2004), government officials (Haniffa & Hudaib 2007; Lin & Chen

2004), brokers (Fadzly & Ahmad 2004), credit managers (Haniffa & Hudaib 2007), judges (Lowe 1994) and jurors (Frank et al. 2001).

In the process of the research design, groups involved in an audit were identified as possible target groups of the questionnaire survey. Within the framework of this approach, and from the population of interest groups consisting of preparers, analysts and beneficiaries of financial statements, a sub-population was selected whose opinion seemed to be valuable and suitable for analyses. Time and feasibility limits were also taken into account.

Finance and accounting managers and accountancy service providers in the capacity of preparers of financial statements liaise very closely and are responsible for financial statements. They are well-informed about auditing processes, auditors' roles, accomplished work and the applicability of the work, which provides sound bases for a more reliable assessment of deficiencies in potential performance and standards. Consequently, less emphasis is laid on a potential reasonableness gap. The sample was selected from the public database of accounting service providers, who were listed in the register held by the Ministry for National Economy. The questionnaire was mailed to 3,800 addresses and 184 responses were obtained.

Bankers and financial consultants were selected to represent beneficiaries of financial statements. It is fundamental to elicit information from different users since users are linked to monitored businesses in different ways. These users face a larger information asymmetry and may have different expectations of auditors. They may benefit from auditors' activities, without paying for audit services. In terms of cost-benefit implications, the users taking advantage of free services may expect auditors to further intensify their efforts. As a result, their opinion may differ from finance and accounting managers'. The Hungarian Banking Association provided assistance with establishing contacts with its forty-seven members and electronically forwarded the questionnaire to accounting and database divisions. Ten responses were received.

Auditors were selected from the population to represent the opinion of the auditing profession, which is most involved in the audit expectation gap. The Chamber of Hungarian Auditors assisted with forwarding the questionnaire to its 5,306 registered active and passive

auditors and 268 members sent back the filled questionnaire. In addition, a national control authority, a representative of the Borsod-Abaúj-Zemplén country, while not in the capacity of an authority, also provided assistance with distributing 100 paper questionnaires to the population involved in the control, to people dealing with preparing and using financial statements. 48 responses were received.

The online responses were registered, stored and summarised by EvaSys automation software, which implemented the survey, assessed the responses and forwarded them to the author, who analysed them.

Altogether 510 responses, which meant a 5.50% usable response rate, were obtained. The responses from active and passive auditors registered with the Chamber of Hungarian Auditors amounted to 53% and the response rate of accounting service providers registered by the Ministry for National Economy accounted for 36%. As many as 9% respondents dealt with audited financial statements and worked for audit authorities. The remaining responses (2%) were sent by experts working for member institutions of the Hungarian Banking Association.

The objective of this study was to sample four different groups of population with similar relationships to audit. However, the responses to the demographic questions revealed a surprising picture. For instance, only 69% of the respondents from the population of the Chamber of Hungarian Auditors indicated that they were involved in audit activities. Similarly, respondents who were accounting service providers listed in the register held by the Ministry for National Economy could not be considered to be a homogenous group in terms of their activities, for as many as 26% were not pursuing the career of an accountant or a financial manager at the time of the survey. Consequently, in order to support the hypotheses stated in the study, not the originally planned sub-population but another population was taken into account in the process of analyses. The classification and division was made on the basis of the questions related to the respondents' own activities.

The table below illustrates the classification of the respondents by their activities into three main groups, which may provide grounds for eliciting differences or similarities in opinions:

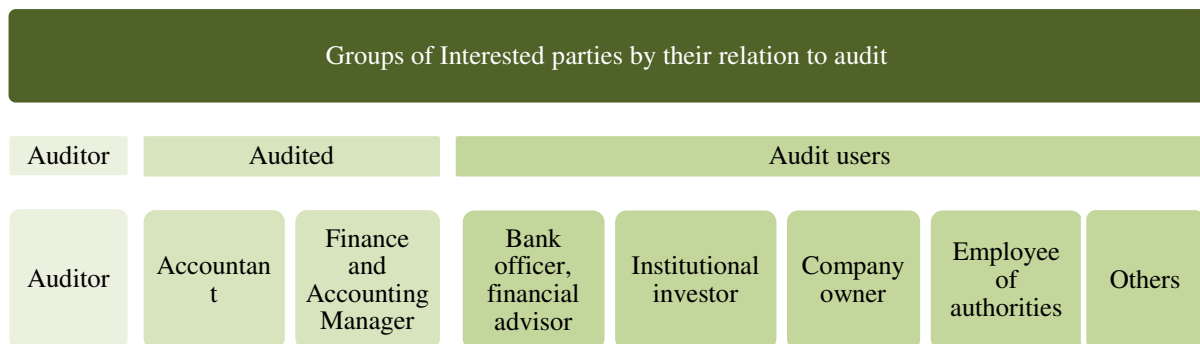


Figure 4. Interested parties by their relation to audit
Source: author's own elaboration

The following pie chart shows the distribution percentage of the number of items within the total sample in the three developed and examined groups.

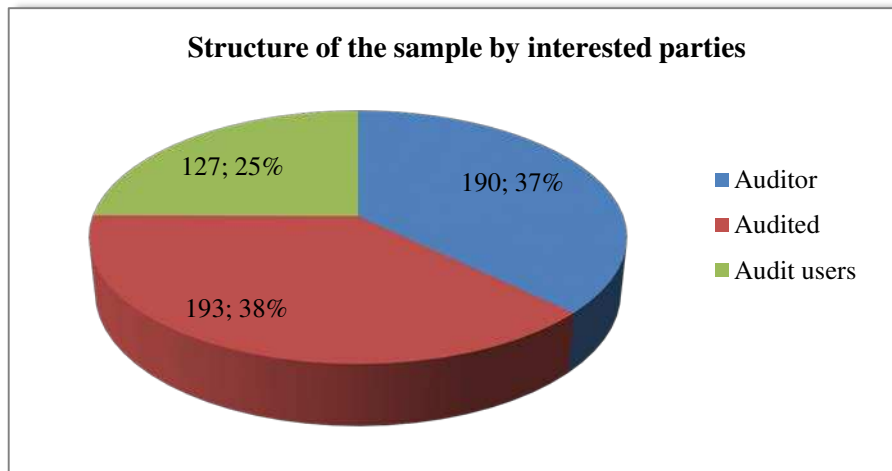


Figure 5. Structure of the sample by interested parties

Source: author's own elaboration based on the data processed by EvaSys Education Survey Automation Suite

In order to achieve the research objectives of this study, that is to identify the causes of the audit expectation gap and typical components of its nature, the respondents were requested to express their opinions about auditors' responsibilities and duties. The respondents were asked whether auditors could perform the entrusted tasks efficiently (the invested work, the achieved results, pay for work with special focus on the ratio between them) and bear the responsibility for the performed work. In addition, they also had to indicate whether the listed tasks, duties and responsibilities were expected of auditors in Hungary. If the respondents thought these items were expected, they had to answer the questions related to the ways auditors could meet these expectations. If the participants of the survey did not think so, they were invited to indicate whether auditors would need to meet the expectations related to their tasks, duties and responsibilities in the future.

Auditors' responsibilities can be classified as follows:

- the requirements for auditors laid down in the Hungarian legislation;
- auditors' responsibilities adopted in Hungary and specified in the Hungarian National Standards on Auditing and Quality Control; and
- not existing auditors' responsibilities based on Porter's study (1993),

which encompassed the following main issues:

- auditors should bear responsibilities for accuracy of corporate financial statements and sustainability of corporate solvency;
- auditors should provide early warnings and issue alerts concerning mistakes made by companies;
- auditors should detect possible tax fraud or any other financial fraud and other financial illegal acts and report them both to the stakeholders of the company and to the appropriate authorities.

The responsibilities belonging to the first two categories and determined by audit legislation in Hungary and stipulated in the Hungarian National Standards on Auditing and Quality Control hereinafter are called 'auditing standards requirements.'

From the consideration above it follows that the structure of the audit expectation gap in Hungary, that is, which duties and responsibilities contribute to which component of the gap, can be identified. The classification principles are as follows:

- I. Deficient performance gap – responsibilities set down by auditing standards requirements, when:
 - auditors do not consider them to be their duties or responsibilities, or
 - the interested groups perceive that auditors do not perform their responsibilities to a satisfactory level.
- II. Deficient standards gap – responsibilities that are not defined by standards, but can reasonably be expected of auditors to accomplish.
- III. Reasonableness gap – related to responsibilities that are not defined by standards and cannot reasonably be expected of auditors to accomplish.
- IV. Improper interpretation gap, a new component of the audit expectation gap introduced by the author. The existence of the gap has been proved and involves conclusions drawn from audit results, which are defined by standards, auditors meeting them, but the interested groups misinterpreting their meaning.

For classification purposes, an analysis of interested groups' opinions was conducted to prove the existence of performance, standard, reasonableness and improper interpretation gaps. This depended on whether the specific responsibility was reasonably expected but not existing, reasonably not expected and not existing, or improperly interpreted responsibility by the groups involved.

The process of defining the audit expectation gap in Hungary was modelled as follows:

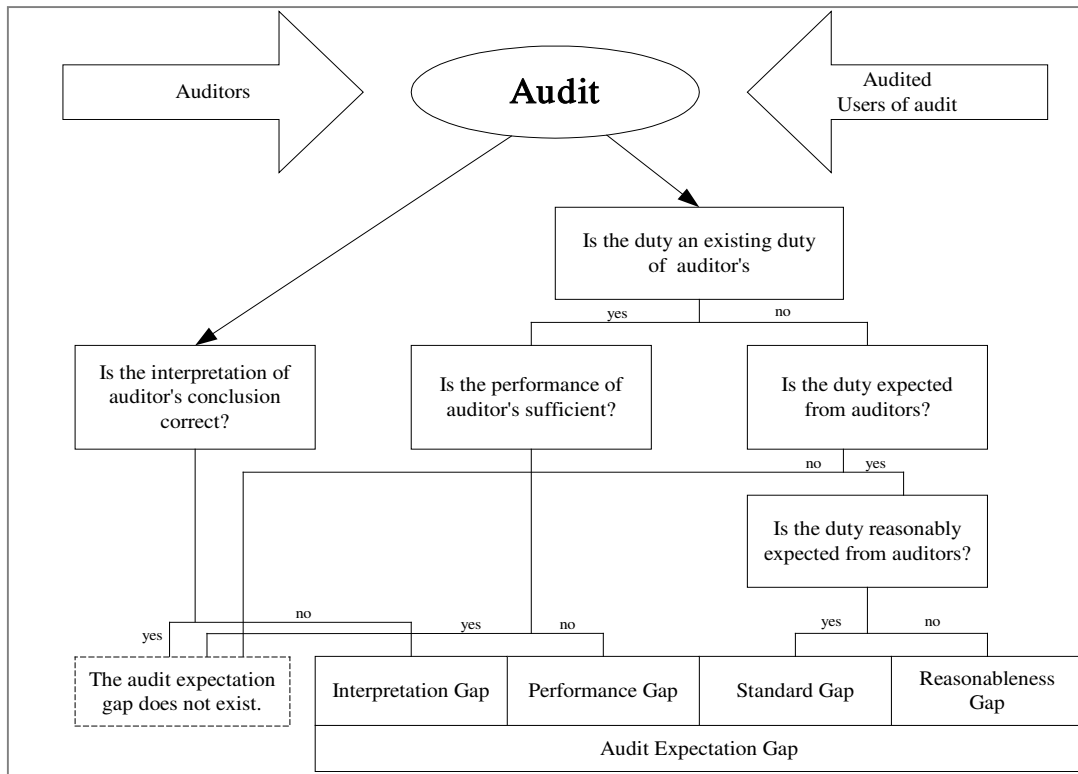


Figure 6. Process of determining the Audit Expectation Gap
 Source: author's own elaboration, based on Porter, 1993

On the basis of the analysis of responses, the specific factors contributing to the existence of certain components of the audit expectation gap may be presented.

MAIN FINDINGS

In the process of defining the audit expectation gap on the basis of the model illustrated in Figure 6 and evaluating the responses of the interested groups, a numerical criterion is to be established to enable us to clarify what position a specific group takes regarding the above-listed issues. The reviewed literature offers several solutions to establishing a numerical criterion. Whilst examining the audit expectation gap and identifying the position of the interested groups taken on this issue, Porter (1993) asserts if 20% of the respondents considered that a duty was reasonably expected and should be performed, it was relevant. Troberg and Viitanen (1999) in their studies suggested a higher rate of

25%, which 'constituted a qualified minority'. This study adopted Troberg and Viitanen's (1999) numerical criterion.

For the purpose of establishing a proper criterion, this research study conducted a hypothesis analysis regarding the population rate on the basis of sample characteristics formed by auditors, audit and audit users. Hence, the conclusions formulated in this study are relevant to all interest groups concerned. For the assessment of the hypotheses set in this study (supported or rejected), a Z-test was used to determine a significance level of 5%.

After a statistical evaluation of the responses to the questionnaire and further developing Porter's model of the structure of the audit expectation gap, this study modelled the audit expectation gap in Figure 7. The model illustrates the most typical factors that characterise the component elements of the audit expectation gap and provides a basis for identifying measures to contribute to narrowing the gap in Hungary.

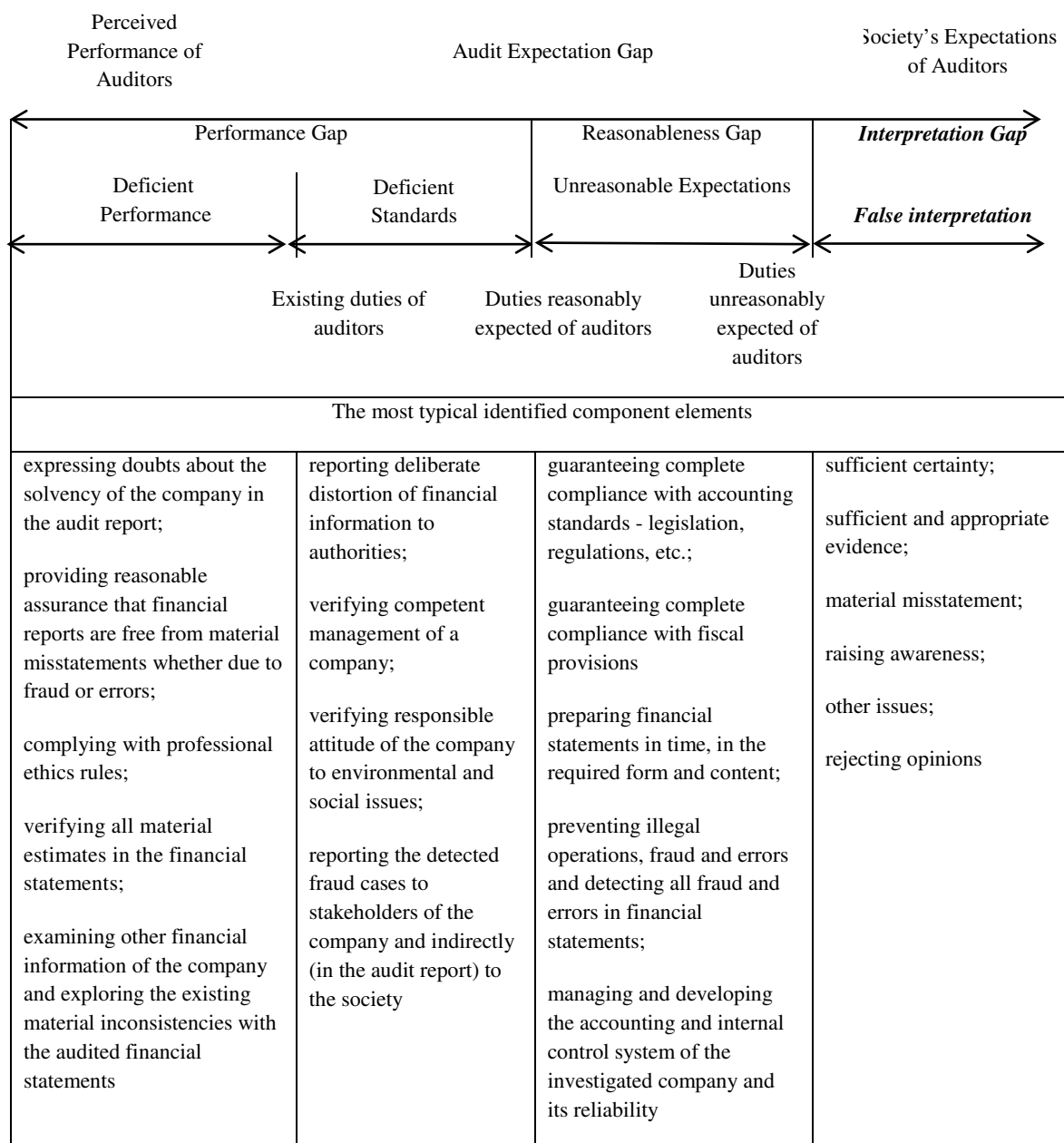


Figure 7: Structure of the audit expectation gap in Hungary by interested parties
Source: author's own elaboration

The conducted analyses support the hypotheses set in this research study. Hence, the following thesis can be formulated on the basis of the findings of this research:

In Hungary the audit expectation gap stems from the combination of the deficient performance of auditors, deficiencies in audit standards, unreasonable expectations and misinterpretations of audit functions, the mapping of which enables us to identify the possible tools required for narrowing the gap.

It should be noted that the author of this study is fully aware of the limitations of prior and the current research conducted into the audit expectation gap. This study attempts to express general and homogeneous opinion about a profession which requires a high level of professional knowledge and constant evolutionary development. The author is also aware that this profession is a total of individuals, whose professional knowledge, attitude to their profession and reliability may differ.

However, audit interest groups also consider the audit profession to be a homogeneous total when they make decisions about the audit future, duties and responsibilities to be performed.

It should be highlighted that this study did not aim to criticise the competence and professionalism of the interest groups involved in audit, including auditors, auditees and audit users. The current study rather attempted to identify possible ways of reaching compromises and consensus and provide them to interest groups to enable auditors with extremely high professional knowledge to meet expectations of their users.

It is envisaged that the findings reported in this research study would provide useful information to all three interested groups. Auditors should consider making some modifications concerning certain aspects of regulatory character and identifying ways of further increasing the audit performance. Auditees and audit users should further improve their knowledge on audit functions

and limitations, the lack of which results in unreasonable expectations and misinterpretations of the true content of independent audit reports in some cases. The author of the current study believes that the findings of this research study contribute to further developing audit and accounting rules and regulations and can be

beneficial in strengthening the knowledge of participants in higher education and interested groups. Hence, this becomes one of the tools of narrowing the audit expectation gap in Hungary.

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Is Your Boss Really Smarter Than You Are?

The Influence of the Length of Employment and the Level of Hierarchy on Employee Knowledge about Risk Management

MICHAEL SCHWANDT
PHD STUDENT

e-mail: michael-schwandt@web.de

SUMMARY

This research paper deals with knowledge about risk management; in particular, it examines employee knowledge about handling risks in the construction sector. A survey was conducted among personnel working in the construction business; research methodology is based on a standardised questionnaire. Respondents from all levels of hierarchy and with different lengths of employment are compared in order to find out the influence of these factors on know-how and skills. In the second step data was analysed with statistical methods, such as standard deviation or correlation of different variables. As a main result with regard to the length of service, two groups of employees can be distinguished: Employees with less and employees with more than two years in a company. Two years of service form a kind of threshold, up to which the knowledge increases markedly, while after that it only grows at a slower pace. In terms of the level of hierarchy an almost linear trend was observed, confirming that there is a strong relationship between position within the company and knowledge about risk management: The higher the level of hierarchy, the greater the knowledge of the employees.

*Keywords:*Risk; Risk Management; Statistical Data Analysis; Construction Industry

*Journal of Economic Literature (JEL) codes:*C12, D81, G32, J24, L74, M12

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INTRODUCTION

Crisis situations do not happen from one day to the next. There are signals that point to them and risks pose only the last phase of a long process. The question of why some companies fail to foresee their economic troubles is a legitimate one. Did decision-makers fail to see the significance of the changes that were taking place in the company's environment? Or was the management not suited to properly handle the situation? It is often not an executive of the company, but rather a normal member of staff, standing at the bottom of the corporate hierarchy, that first encounters the risk factor and attempts to manage it. However, these persons cannot be expected to have risk management skills and knowledge. They often

do not have theoretical knowledge and sometimes even their practical experience is lacking.

The knowledge of business companies' staff about risk management is influenced by several variables, with the influence being of different levels. It is therefore not equal for all employees. For a company it may be advantageous to know these variables in order to find a suitable employee for each task or to entrust each employee with tasks that it is certain they can solve. By deliberately changing some variables, the company has the opportunity to improve risk management. It is therefore interesting to research about the influence of different variables on the knowledge of employees.

THEORETICAL BACKGROUND

A precondition for dealing with risks is at first an understanding of what the term risk means at all. In the general perception, risk has a negative connotation. Several authors connect risk with a target hazard risk or the deviation from a pre-determined target. Neubürger (1989) defines risk as *"positive difference between the expected and actual target achievement."* Accordingly, a chance means the negative difference between the expected and the realized level of target achievement. However, another definition of risk shall be mentioned, which was worked out by Ehrmann (2005). His explanation is more suitable to be used in the scope of this article as the definition of the term risk. According to the author risks:

- are connected to decisions;
- originate from the uncertainty relating to assumptions during decision-making;
- mean a danger or hazard.

In addition to the term risk, risk management must be illuminated as well. According to Eichler&Bungartz (2004) there is a very comprehensive, but at the same time also very compact definition of the process of risk management, which, for reasons of comprehensiveness and conciseness appears to be suitable to determine the process of risk management for the scope of this article: *"Enterprise-wide risk management is understood as the process of strategy formulation, the enterprise-wide identification of significant risks and opportunities, managing these risks, taking into account the risk appetite of the company, to ensure the achievement of corporate goals, done by the supervisory board, the upper management, the operational management and the employees."* Haller (1986) places significant risks in the centre of his definition of risk management, which is in his view oriented to:

- recognize and assess the significant risks better in all management activities and in all aspects of leadership;
- tackle risks considered important with suitable instruments and procedures;
- draw general leadership and organizational consequences in terms of risk management.

Companies in the project business are to be characterized by several specifics, which also applies to the requirements with regard to their risk management. This can be further differentiated in terms of the industry in which the company operates in. The construction industry is characterized by some specific distinctions in particular. The classic risks of project management - such as risk of quality, cost and time - naturally apply to the construction industry, too, but this sector can be described in detail through some further anomalies that Horsch (2002) summarizes as follows:

- Every building project can be characterized by uniqueness
- Very often the construction contract is concluded first, and only after that the execution planning with detailed designs is done
- Large construction projects involve a high degree of technical complexity, for which the construction companies partly do not have core competences (any more)

- The technical complexity is tangent to the contractually owed functioning
- Each individual order represents a high financial volume (which is why the credit line is impacted by issuing of a contract performance guarantee and warranty bond)
- The contractual and legal warranty obligation is long (usually five, for some components even ten years), often unpredictable in nature (for example in bad faith) and - depending on the subsequent use of the object - in addition to repair of defects can also trigger damages.

THE AIM OF THE RESEARCH AND EXPECTED RESULTS

In the focus of this article is a comparison of employees in the construction industry with regard to the length of their employment and their hierarchical level. The question to answer is the influence of these variables on the knowledge of the employees. First, the relationship between the length of service in the company and the knowledge about risk management is researched. Employees who have been in the business for a long time already know the company very well and know exactly how risk management works in their business. With a high probability, they could already gain a lot of experience, which results in higher skills and knowledge about risk management. With employees who are new to the company, this knowledge is often lacking. They have to orientate themselves in unfamiliar circumstances, solve new tasks and have not been able to collect as much experience compared to employees with higher seniority. It is therefore presumed that between the length of service and the knowledge about risk management a positive relationship can be found, which forms also the first hypothesis:

Hypothesis 1: There is a connection between the time of employment on the one hand and employee knowledge about risk management on the other hand. A similar presumption applies to the organizational level at which the employee is working. Here it can be assumed that only those employees are promoted who have solved previous tasks with above-average success and meanwhile have gained experience in dealing with different risk situations. In addition, it may be assumed that employees on a higher hierarchical level understand what employees on a lower hierarchy level do, and could provide guidance to them or theoretically could even solve the tasks themselves. Therefore, a connection between the hierarchical level and the knowledge about risks is suspected and a corresponding hypothesis formulated:

Hypothesis 2: There is a connection between the hierarchical level on which employees fulfil their duty on the one hand and their knowledge about risk management on the other hand.

With regard to the relationship between the level of hierarchy and the knowledge about risk management, the author has performed a series of interviews with experts. The results of this interview series can be found in Schwandt (2014). As an outcome of the interview surveys, the importance of the involvement of staff at the lowest level of hierarchy has been confirmed. According to the interviewed construction managers, the perception of risk management differs

depending on the organizational level. This is especially true for risk awareness, which is more evident at the higher levels of management, for example among executive managers, than on the middle hierarchical level, among chief construction managers or project managers. Risk awareness is least developed with site managers and foremen, who work at the lowest organizational level in terms of white collar personnel. Here risks are less detected and information about risks has yet not fully reached them or is not understood. Also the transfer of knowledge takes place along the hierarchical structure. The management takes part in training courses and passes along their knowledge to the intermediate level, which in turn addresses the level of normal employees. However, the development of employee stakes along time because information often arrives incomplete or only with a time delay. The staff addresses problems sometimes, but a sufficient sensitivity to risks is not yet available to all employees. It also occurred that an issue involving risk was indeed understood theoretically, but was not associated with the risks on their own project. In any case, integrated risk management extends to all hierarchical levels and includes normal employees on the lowest level of the organization, too.

THE APPLIED RESEARCH METHOD AND THE PROCESS OF ANALYSIS

The hypotheses were researched with the help of a questionnaire. Data-collection by questionnaire is a very common instrument of scientific research and offers several advantages. A large number of people can easily be interviewed and the information obtained can be statistically analysed, and conclusions with respect to the research subject can be drawn. To achieve this goal, the use of a standardized questionnaire is recommended, in which all questions are formulated uniformly and the answer choices are already predetermined. Through the classification of respondents to groups of attributes, in this particular case the lengths of employment and the level of hierarchy, and the statistical analysis of the responses of these groups, inferences can be drawn on the impact of the variable.

For a detailed review of the hypotheses, a part of the questionnaire contained questions with the help of which the participants' knowledge can be measured. In order to limit the effort to evaluate all questionnaires differently, it appeared advisable to have the questions answered in a multiple-choice system. Through this approach, space for individual answers to the questions was given and the questionnaire could still be standardized and then analyzed by statistical means. Taking into account the advice of Babbie (2003) for structuring a questionnaire, the questionnaire was divided into the following parts:

- a) Knowledge about risk management
 - Questions about risk management in general (8 questions)
 - Questions about risk management in business companies (8 questions)
 - Questions about risk management on construction projects (8 questions)
- b) Questions regarding personal data (4 questions)

The questionnaire included a total of 66 questions and several topics connected with risk management, including reasons for risky projects and risk awareness. The results of these parts of the questionnaire are not listed here since they are very specific and would exceed the scope of this article. In order to explore the knowledge of the employees about risk management, the questionnaire was divided into three blocks, each containing eight assertions. The first block contained general statements with regard to risk management, in the second block statements about the company for which the respondents work could be found. Assertions about the handling of risks especially in construction projects formed the third group. Every question appeared in the form of a "true or false" statement, which was to be answered by the respondents. Half of the assertions in each block were correct, the other half were incorrect. Through different distributions of correct and incorrect responses within the three blocks, conclusions could be drawn about the knowledge of employees in the three areas of risk management.

The questionnaire was completed by a total of 209 participants. All persons participating in the survey were at the time of the survey employees of various construction companies. Respondents were working on construction projects, in the administration of their companies or in executive positions. To process the large number of data on a professional level and be able to analyse it using statistical tools, the evaluation of the data set was operated with the help of SPSS Statistics. Most of the evaluations were carried out by the method of analysis of variance (ANOVA = ANalysis Of VAriance), which analyses the effect of independent variables on dependent variables. The method is based on the calculation of variances and according to Hajdu (2003) has the advantage that "*the variance usually in the implementation of comparisons makes sense*", so it is suitable, for example, for testing hypotheses. Among the completed questionnaires there were also some that were not filled in completely or were partly faulty. However, these questionnaires are part of the evaluation. In order not to distort the results, the missing data has not been replaced by average values or incorporated in the analysis by using any other different method.

RESULTS OF THE SURVEY

First, it is worthwhile to consider the answers as a whole. Already the two extreme values are interesting. The achieved minimum score is zero, so at least one of the respondents did not give a single correct answer. The maximum score however is 20 correct answers. This means that out of the theoretically possible 24 points, the participant with the most correct answers was able to answer just 83.3% of the questions correctly. These two extreme values, which were determined from all questionnaires, generate the first impression that the knowledge of the respondents can be further improved. This impression is enhanced when one considers the average values. All respondents answered on average 11.6 questions correctly. From a number of 24 questions, this value is even slightly below the threshold of 50%. This value is backed up by the standard deviation. Standard deviation was four correct answers, which means that the respondents answered on average between 7.6 (31.7%) and 15.6 (65.0%) of 24 questions correctly. As shown in

Table 1, the participants, on average, were able to answer only about half of all questions with a standard deviation of four correct answers.

Table 1
Statistical figures regarding knowledge about risk management

| Correctly answered questions | N |
|------------------------------|---------|
| Minimum | 0,00 |
| Maximum | 20,00 |
| Mean | 11.6054 |
| Standard Deviation | 3.9824 |

Source: author's own work

For further analysis of the survey, the total of all respondents was divided into subgroups. One of the examined variables was the length of service. Employees with employment in their company of less than two years are represented with a share of almost 24%. The largest group with a share of almost 39% was formed by employees with between two and five years of employment. From this point, the number of employees decreases steadily with increasing seniority. Overall, however, there is a balanced distribution, and all groups are represented with a significant number of elements, see Table 2 below.

Table 2
Breakdown of the variable „Length of employment“

| Length of employment | Frequency | Percent |
|----------------------|-----------|---------|
| 0-2 years | 50 | 23.9 |
| 2-5 years | 81 | 38.8 |
| 5-10 years | 40 | 19.1 |
| More than 10 years | 27 | 12.9 |
| No answer | 11 | 5.3 |
| Total | 209 | 100.0 |

Source: author's own work

It seems reasonable to assume that employees who have been in the business for a longer time have been working on several projects, have already encountered various risks, have dealt with these and hence have higher experience in risk management. Therefore, the hypothesis assumed that a connection exists between the knowledge about risk management and the length of service of an employee in a company.

Table 3

Statistical figures for the variable „Length of employment“

| Time of employment | N | Mean | Standard Deviation |
|--------------------|----|-------|--------------------|
| 0 - 2 years | 44 | 9.59 | 3.7374 |
| 2 - 5 years | 74 | 12.04 | 3.6730 |
| 5 - 10 years | 35 | 12.05 | 4.2213 |
| More than 10 years | 25 | 13.16 | 3.9862 |

Source: author's own work

The results of the survey confirmed that the length of service significantly influences the knowledge of the employees. As can be seen in Table 3, two groups can be distinguished with regard to the time of employment: the employees with less and the employees with more than two years in a company. The staff who have been at most two years with their company achieved an average score of only 9.6, while the employees with longer than two years in business achieved a significantly higher value of at least 12. The first group were able to answer correctly on average about 40% of all questions, while this figure among the employees of the second group was at about 50% to 55%. Results distribute similarly when one considers the three knowledge blocks separately, see Table 4. The fewest correct answers in all blocks of knowledge were given by the employees with a tenure of up to two years. With one exception, the employees with the highest employment duration achieved the highest values. In parallel, the largest increase is to be found between the first two groups.

Table 4
Average number of correctly answered questions per test section (max. 8/section) by length of employment

| Time of employment | General Knowledge | Company knowledge | Construction knowledge |
|--------------------|-------------------|-------------------|------------------------|
| 0 - 2 years | 2.90 | 2.00 | 4.71 |
| 2 - 5 years | 3.59 | 2.82 | 5.50 |
| 5 - 10 years | 3.30 | 3.05 | 5.67 |
| More than 10 years | 3.42 | 3.32 | 6.46 |

Source: author's own work

This finding is confirmed by the one-way analysis of variance. With three degrees of freedom, the result for the F test (in the statistical meaning the test of variance analysis with respect to the test statistic) leads to a value of almost six: $F(3) = 5.864$. This is a mid-level value for which it can be assumed that the length of service significantly influences the knowledge about risk management. However, no linear trend can be observed, so we cannot say that knowledge is greater the longer the employee works in the company. Employees who have been in the company for 10 years or more, do know more, but not significantly more than employees with a seniority of 2-5 or 5-10 years. It seems that two years of service form a kind of threshold, up to which the knowledge increases markedly, while after that it only grows at a slower pace.

Furthermore, as part of the analysis it was tested whether connections to other variables exist. This test also confirmed the influence of the variable length of employment on knowledge about risk management and led

to similar results, see *Table 5*. On the one hand, there are significant differences between the four groups compared to each other in terms of awareness of the rules. Employees, who have been with the company for only a short period, know the regulations the least. The level of awareness increases with the length of service and reaches the highest value among the employees who have been in the company for at least 10 years.

Furthermore, as part of the analysis it was tested whether links to other variables exist. In case of two groups, according to *Hunyadi et al. (2000)* the Mann-Whitney test is used. For comparing at least three samples to each other, the Kruskal-Wallis test can be utilized. Both work as a non-parametric statistical test that do not assume a given probability distribution and examine differences in the median of each group. The chi-square provides information on the distribution of the values, dF on the degree of freedom and the significance level on the probability of error. Only such links are shown below in which the significance level has a maximum of 5%. Subsequently, the groups can be compared to each other based on the respective group average (mean rank). The Kruskal-Wallis test showed that the employee groups differ in how they perceive the filing system for the regulations. Here it is noticeable that the employees with increasing seniority specify that it is increasingly difficult to track the location of the regulations. For employees with high job tenure regulations are usually well known, but where they can be found exactly, is not always known.

Table 5
Variable „Length of employment“:
Interrelations with other variables

| Kruskal Wallis Test | Knowledge about risk management | Statement 25 “I know the rules valid in our company.” | Statement 30 “It is difficult to track the reviews of rules, because they are filed at different places.” |
|---------------------|---------------------------------|--|--|
| Chi-Square | 16.2511 | 11.8393 | 8.1476 |
| df | 3 | 3 | 3 |
| Asymp. Sig. | 0.001 | 0.008 | 0.043 |
| | | | |
| 0 - 2 years | 63.12 | 80.96 | 82.73 |
| 2 - 5 years | 95.95 | 95.01 | 91.90 |
| 5 - 10 years | 96.86 | 98.42 | 103.55 |
| More than 10 years | 106.52 | 125.00 | 116.35 |

Source: author's own work

Since the respondents have indicated on which hierarchy level they are working in their company, conclusions can be drawn on the connection between the knowledge of the employees about risk management and their hierarchical level within the company. When specifying hierarchical level, respondents could choose from three possible answers. The first group includes the highest hierarchical level to which the general management and heads of subsidiaries and business areas

of a company belong. As expected, this group was the smallest, with a share of about 5%, as only a limited number of positions are available on this level. The middle level group was significantly greater, with a share of almost 36%. Here all project managers, senior site managers and department heads were recorded, who together formed the middle organizational level. The group of normal employees constituted the third group, which, as expected, formed the largest party with a share of more than half of all respondents. Members of this group usually have neither responsibility for profit nor responsibility for other staff. The exact breakdown is shown in *Table 6*.

Table 6
Breakdown of the variable „Hierarchy level“

| Hierarchy level | Frequency | Percent |
|-----------------|-----------|---------|
| Upper level | 10 | 4.8 |
| Middle level | 75 | 35.9 |
| Low level | 114 | 54.5 |
| No answer | 10 | 4.8 |
| Total | 209 | 100.0 |

Source: author's own work

In general employees reach a higher level in hierarchy if they have distinguished themselves by good performance or if they have more experience through many years of service. Therefore the hypothesis assumed that there is a connection between knowledge about risk management and the organizational level at which the employee is working within the company.

Table 7
Statistical figures for the variable „Hierarchy level“

| Hierarchy level | N | Mean | Standard Deviation |
|--|-----|-------|--------------------|
| Upper level (General management, heads of subsidiaries) | 7 | 14.14 | 4.2594 |
| Middle level (project managers, department heads) | 67 | 12.09 | 3.8562 |
| Low level (normal employees) | 106 | 11.15 | 3.9177 |

Source: author's own work

The survey results confirmed the hypothesis: the higher the level of hierarchy, the greater the knowledge about risk management. In *Table 7* it can be seen, that the employees on the low hierarchy level on average answered 11.2 questions out of a total of 24 questions correctly, which corresponds to a rate of 46%. The staff on the middle level of hierarchy could answer half of the questions correctly and thus achieved a better value. The respondents on the highest hierarchy level reached the highest value. On average, they could answer 14.1 questions correctly, which corresponds to 59%. Between the upper and the lowest hierarchy level a gap of three correctly answered questions can be found, which means that the upper level was able to answer 12.5% more questions right. This result is also confirmed by the results within the three blocks of knowledge, see *Table 8*. In each

block, the score of the employees at the lowest hierarchical level is the lowest and the score of the employees on the upper level is the highest. The only exception is knowledge about risk management on construction projects, where the respondents on the middle level reached a slightly higher value than the executives. However, these values hardly differ and may be distorted by the small number of respondents in the first group. In general, across all levels of hierarchy a nearly linear trend can be observed, which confirms that there is a connection between position within the company and knowledge about risk management. The survey has thus confirmed the hypothesis. As the number of elements in the first group is relatively small, at first we may speak of a trend, but not of statistically proven significance. However, this is due to the nature of the thing, because in any organization, the number of employees on the highest level is the smallest, because the number of positions is very limited.

Table 8
Average number of correctly answered questions per test section (max. 8/section) by level of hierarchy

| Hierarchy level | General knowledge | Company knowledge | Construction knowledge |
|---|-------------------|-------------------|------------------------|
| Upper level (General management, heads of subsidiaries) | 4.33 | 3.25 | 5.70 |
| Middle level (project managers, department heads) | 3.33 | 2.85 | 5.82 |
| Low level (normal employees) | 3.30 | 2.58 | 5.23 |

Source: author's own work

With regard to the hierarchy level of the employees surveyed further relations to other variables were sought using the Kruskal-Wallis test. As can be seen in Table 9 this was achieved for the question of attendance in a training on risk management as well as for the question about information on new regulations. In both cases, the survey showed results in accordance with the hierarchy level. Executives on the upper level are informed and trained; even at the middle level, this happens sometimes. At the level of normal employees less information is communicated and they also participate in less training.

Table 9

Variable „Hierarchy level“: Interrelations with other variables

| Kruskal Wallis Test | Knowledge about risk management | Statement 21 “Attendance in a training about risk management.” | Statement 27 “I get informed when risk management regulations are revised.” |
|---------------------|---------------------------------|---|--|
| Chi-Square | 7.1128 | 11.4241 | 6.0503 |
| df | 2 | 2 | 2 |
| Asymp. Sig. | 0.029 | 0.003 | 0.049 |
| Upper level | 131.71 | 132.50 | 114.40 |
| Middle level | 96.72 | 106.67 | 104.55 |
| Low level | 83.85 | 88.95 | 87.23 |

Source: author's own work

CONCLUSION

Employees’ knowledge about risk management is influenced by several variables. Depending on the variable, this influence turns out differently. The influence of variables on employees’ knowledge was explored with the help of a questionnaire. The total of all respondents has been divided into subgroups in order to investigate whether the dependent variable - the knowledge of respondents - shows significant differences in the various groups.

The first variable examined was the relationship between the length of service for a company and knowledge about risk management. With regard to the length of service, two groups of employees can be distinguished: employees with less and employees with more than two years in a company. The employees who had spent less than two years with the company reached on average only 9.6 of the theoretically possible 24 correct answers, while the employees who had been employed longer than two years with the company achieved a significantly higher value of at least 12. The staff in the first group were able to answer correctly on average about 40% of all questions, while this figure was among the employees of the second group at about 50% to 55%, depending on how long they had been employed by the company.

The largest increase was identified between the two groups with a seniority of 0-2 and 2-5 years. However, no linear trend could be ascertained demonstrating, for example, that knowledge is greater the longer the employee has been working in the company. Employees who have been in a company 10 years or more do know more, but not significantly more than employees with 2-5 or 5-10 years. It seems that two years of service form a kind of threshold, up to which the knowledge increases markedly, while after that it only grows at a slower pace.

The survey has also gained other results with regard to the length of service, demonstrating that this variable exerts an important influence on the knowledge of the respondents. There were significant differences among the four groups compared to each other in terms of awareness of the rules

on risk management. For employees who have been with the company only a short time, the regulations are the least known. The level of awareness increased with the length of service and reached the highest value among the employees who had been in the company at least for 10 years. On the other hand, the employee groups differed in terms of how they perceive the filing system for the regulations. Here it is noticeable that the employees with increasing seniority stated even more, that it is increasingly difficult to track timeliness and location of the regulations. For employees with high job length the rules were known, but where they can be found and what the system of the rules is was less known with increasing seniority. Thus, the survey has clearly confirmed that the length of service affects the employees' knowledge about risk management significantly. In short, this study found that there is a connection between the time of employment on the one hand and employees knowledge about risk management on the other hand.

The second variable examined was the organizational level of the surveyed employees and a link to their knowledge about risk management. The survey results have confirmed the hypothesis: the higher the level of hierarchy, the greater the knowledge of the employees.

Across all levels of hierarchy, an almost linear trend was observed, confirming that position within the company affects knowledge about risk management. Of the 24 questions, the staff on the lowest hierarchy level were able to answer correctly on average 11.2, which corresponds to a rate of 46%. The staff on the middle level of hierarchy achieved a better value and with 12.1 were able to answer half of all questions correctly. The staff at the highest hierarchy level reached the highest value. They could answer on average 14.1 questions correctly, which corresponds to 59%. Between the upper and the lower level of hierarchy were thus three correct answers, which means that the upper level was able to answer 12.5% more questions correctly, representing a significant difference. One explanation for the results could be the connection between hierarchical level and attendance of training courses. Executives on the highest hierarchy level are regularly trained, on the middle level of the hierarchy this happens only sometimes, while on the level of the normal employees clearly less training takes place. The study has thus found that there is a connection between the hierarchical level on which employees fulfil their duty on the one hand and their knowledge about risk management on the other hand.

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Practical Approach to International Business Studies in English at Polish Universities

KRYSTYNA ZOLADKIEWICZ

PROFESSOR DR

email: ekokz@ug.edu.pl

RENATA ORLOWSKA

ASSISTANT PROFESSOR

email: ekoro@ug.edu.pl

SUMMARY

The subject of this paper is the presentation of BA and MA International Business (IB) studies in English as a new practice on the Polish educational market. The main objective of this paper is to examine the IB studies programmes in English at the University of Gdansk - (UG) and to present the practical approach of their functioning combined with some recommendations. The results show that the UG has established competitive and attractive programmes, although at lower cost levels compared to universities in other countries where the IB studies have longer tradition and good reputation. It is considered that IB studies cement the international position of UG. This article presents both quantitative and qualitative data.

Keywords: Competition, Business Economics, Undergraduate Teaching, Graduate Teaching

Journal of Economic Literature (JEL) codes: M20, M210, A220, A230

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INTRODUCTION

The University of Gdansk is the largest higher education institutions (HEI) in Northern Poland, in the Pomerania region. With almost 33,000 students in its eleven faculties and 1,700 academic staff members, UG is well known in Poland, which is reflected by its positions in the rankings. The reason why the University of Gdansk is doing so well is that it offers very high quality programmes (Zoladkiewicz, et.al, 2000), which often are less costly than similar programmes in other European Union countries, especially old EU members, and it provides students with good professional preparation for meeting the market demands and needs. Among its offerings there are full-time IB studies and part-time doctoral studies in economics delivered entirely in English. Moreover, BA and MA International Business diplomas are recognised worldwide.

The Faculty of Economics of the University of Gdansk, within the track called - International Economic Relations, has developed Bachelor and Master's Degree Programmes in International Business. These unique degree programmes in International Business commenced on 1 October 2008. The academic year 2014/15 is the seventh consecutive year of IB functioning. These study

programmes were an answer to the development of the market economy and the necessity of globalisation on the one hand, and on internationalisation of the educational offerings at the Faculty of Economics on the other hand. Internationalisation of the academic programme designs and activities were found to be a priority in the modernisation of study programmes and a method for enhancement of students and academic staff exchanges, expansion of double and joint degree granting, and research projects.

The subject of this paper is the presentation of BA and MA IB studies in English provided by the University of Gdansk as a new practice on Polish educational market. The main objective of this paper is to discuss the international business studies in English at the University of Gdansk and to present practical approach of their functioning combined with some recommendations. We will argue in this paper that this new and a special type of studies is an opportunity for Polish universities to integrate into international educational system. This paper examines two hypotheses:

Hypothesis 1: IB studies in English increased the attractiveness and improved the reputation of the University of Gdansk.

Hypothesis 2: Introduction of the IB studies in English was an essential step for further development of the Faculty of Economics.

Among the methods used in this paper there are quantitative and qualitative studies. To describe the features of utilized data in this article we used descriptive statistics and graphics analysis. Calculations are based on data provided by the Dean's Office at the Faculty of Economics (FE) at UG. We believe that research based on experiences gained from our international business studies will contribute to general debates on management practice of this field of study (IB). It can be also regarded as a case study to better understand and learn from the Faculty of Economics practices elsewhere, by IB scholar communities at other universities.

RATIONALE BEHIND IB STUDIES

Universities in Poland still require changes in a new business environment. On the one hand there are a number of unemployed university graduates, and on the other hand business is still looking for well qualified and skilled graduates. Employers need graduates who are creative and self-motivated and able to think critically. They expect logical and analytical skills and abilities to properly react to market needs (Ostrószka, 2012). This results in ever new challenges. It also means that transformation of the teaching model is a must. Polish universities are trying to tackle and solve this problem by introducing new types of studies and new courses. The University of Gdansk belongs to one of the most innovative HEIs starting these changes in 2008.

Establishment of IB studies in English at the UG was understood to be an important factor in changes in the HEIs system in Poland. There are two important dimensions to explain this phenomenon. It should be considered from the perspective of university and from the perspective of students, our potential "clients" (Jarosinski&Robinson, 2012). So, what were the main objectives and reasons that the FE decided to build IB studies?

From the Faculty of Economics' perspective IB studies were a response to the new economic environment that the FE was to address. This was connected with an attempt to raise the Faculty's position on the educational market not only in Northern Poland but also on wider markets, including international ones. IB studies had a prominent role in contributing to the Faculty's new profile and prestige. It performed as one of major factors in deepening its high quality and brand. It was seen as an indispensable new step to maintain a good reputation and a good selection of students, and was considered as a method to keep a comparative advantage in the fierce competition on the educational market. Newly offered types of studies were also a response to enrolment problems due to the declining number of potential students resulted from the demographic situation. These demographic problems are rather overwhelming, relate to any HEIs in Poland, and any responsible institution needs to tackle this issue. All in all, the IB offer at the FE was intended to attract new, and in our opinion a rising segment

of the educational market. It was considered an additional offering to our already existing study programmes (Orłowska&Zoladkiewicz, 2013). IB is a brand that enhances positioning of the FE as an educational centre of excellence.

And last, but not least, IB studies were also regarded as an important new source of income for the FE, especially in the context of lowering profits received from part-time studies. Their aim was to improve FE finances as tuition fees for this educational programme are fully paid both by Polish and international students. Besides the additional income, these studies were to further internationalise study programmes and bring students from other countries, even remote ones such as in the Asian region (China, India, Azerbaijan, Mongolia, etc.). This is an important factor in the context of the increased cross-cultural dimension of the student community at the FE, multilateralism, equity and diversity.

From the student's perspective IB studies were a new opportunity to gain the international experience and knowledge so much expected in a demanding labour market. The IB programme was considered as a sort of novelty, allowing students to think critically and creatively, to communicate effectively, to understand local and global connections, and to gain awareness of the responsibilities of international community membership. Among other features, students anticipated achieving the necessary skills in the context of globalization and integration, to develop problem-solving competences in an interdisciplinary context, and to better understand different cultures and develop successfully intercultural communication skills.

To conclude, almost from the start of their existence the IB studies programmes responded both to academic needs of internationalisation, the financial needs at the FE and the expectations of enrolled students. The programme was regarded as preparing the students for challenging positions in various areas of international management or research.

PROBLEMATIC ISSUES

Establishment of IB studies brought up a number of potential or actually existing problematic issues. Again, this can be perceived from different perspectives.

From the academic perspective, the development of an entirely new model of studies was accepted by academic staff with enthusiasm. Among the reasons for this were also financial aspects, according to what was promised and actually it was fulfilled. Lecturers and seminars of IB studies are paid using multiplier of 3 as far as payment per teaching hour (45 minutes) is concerned. However, this resulted in the situation that the number of Faculty members that wished to teach was rather high but not necessary always connected with their competences in English and sometimes also with their knowledge of subjects, especially newly introduced ones. So the

introduction of IB studies required the selection of IB teachers, which led to some tensions within the Faculty.

A special concern was the Diploma thesis, which needs the application of a high level of theoretical insight and also empirical practical testing. To this end, supervisors of Diploma theses should be well prepared to make appropriate corrections and assessment and require theoretical and scientific knowledge, practical expertise and a good idiomatic English background.

Thus, the task of the appointed Director of studies was to tackle all those “indirect” aspects of IB studies’ functioning in practice. On the other hand, some teachers were afraid to teach in the IB programme as they were anxious about their English language competences, sometimes with a loss of IB courses with good professors.

Nevertheless, what is beyond any doubt is that IB studies require much more work load from teachers as well as higher qualifications as far as methods of teaching are concerned. Professors are expected to use more active teaching methods, such as case studies, role playing, simulations, buzz groups, etc. or in other words more teaching in the form of “learning by doing” (Schon, 1992).

Teaching IB students may be also discussed in another context, which we termed as the “indirect and psychological” one. This concerns the appearance of internal-faculty competition between teachers from the same faculty. This concept can be drawn from fears of creation of a snobbish and an extravagant group of professors teaching IB students, which could have negative consequences for team work and the integration of the whole Faculty members’ community. It may also be connected with some sociological inferiority feelings as a result of “additional” advantages due to the much higher income level of this group. It may also lead to reservations related to the decreasing number of Polish language studies resulting from some potential students choosing IB studies, which can create problems, especially in the current demographic context. Ultimately, its consequences can take the form of lower incomes due to decreasing teaching hours for some professors.

There is a problematic factor that may also relate to IB education. Sometimes, determined and committed lecturers start to become less involved and take advantage of their good position and success, without regard for what will happen later. This is one of the fears that director of IB studies faces, and it is needed is to fight this approach immediately (as the constantly rising quality of studies is a goal). Yet, this is not only a problem at UG, because Harvard Business School had similar problems while implementing entrepreneurship studies. “Over the years, many Harvard Business School faculty members have proven to be opportunistic teachers” (Cruikshank, 2005).

Another important issue is connected with enhancement of the attractiveness of IB studies for students. There is an incredible engagement of Deans to

bring visiting professors from foreign universities and institutions for sake of good programme and good language skills. It is also an important opportunity to bridge national and international contexts. On the other hand, this creates some disadvantages, especially resulting from a lack of stabilisation. It might be an effect of the fact that visiting professors cannot often make a firm long-standing commitments that their teaching process would be continued in years to come. This does not relate to all external experts but this is what may accompany these types of contractual relations. It is one of major drawbacks that the Director of IB studies tries to overcome, while continuing to invite foreign visiting scholars.

Fears related to IB studies can be also assumed from a student behavioural perspective. IB students may be characterised as a special, more privileged group of students. Sometimes they can behave a bit too arrogantly and are too much demanding as compared to the “regular” Polish language group of students. Certainly, this sort of behaviour is to be eliminated but such a trial can be performed, especially in the context not often well understood “I pay and I demand”² as an argument of a few spoiled students from richer families, etc. This sort of demand may not be compensated by their engagement and diligence in proper studying and activities at the faculty. This is unacceptable in accordance with Polish educational standards and must be excluded but there is always a fear that it may happen. Luckily, it is not a universal situation, and it generally happens rather seldom.

By and large, there is a number of different obstacles that may influence and limit the proper operation of IB studies’. All of these issues profoundly moderate IB studies management practices. Moreover, it is important to be able to make explicit all of the above mentioned assumptions regarding IB studies.

THE CHARACTERISTICS OF BA AND MA DEGREES IN IB AT FE

FE offers two international programs designed for Polish and foreign students; the Bachelor and Master degree studies in IB were planned and implemented at the same time, beginning on 1 October 2008.

The Bachelor Degree in IB is a 3-years (6-semester) full-time undergraduate programme taught entirely in English. Applicants should have a secondary education (secondary-school certificate). Students obtain full recognition of studies by receiving 180 ECTS points. The graduates achieve the final degree of BA in International Business after positive review of their Bachelor Thesis and positive assessment of the Bachelor Colloquium (Exam).

The BA degree’s programme structure consists of strong core and major subjects and an interesting range of

²According to Constitution of the Republic of Poland from April 2, 1997, article 70, para. 2: Education in public schools is free. The law may allow for payments of some services provided by

public institutions of higher education. Authors’ comment: this may consider educational offer in English such as IB studies.

electives (Appendix 1). Core modules include macroeconomics, microeconomics, business mathematics and statistics, finance, international economics, and fundamentals of law. Major and specialisation modules include international business transactions, international finance, civil and business law, European integration, international marketing, international business management, competition policy, Reuters academy, negotiations in business, consumer behaviour, global economy sustainable growth, as well as a number of optional courses. It is essential that the BA programme offers students a comprehensive understanding of the complexities in the field of international business and gives its participants access to exceptional knowledge and expertise about strategic and global business management.

A value added feature is that students may participate in a Double Diploma programme with Upper Austria University of Applied Sciences in Steyr and be awarded with two internationally recognised diplomas. This was possible only on due to introducing IB studies in English at the FE as we were able to offer an equivalent programme for Austrian partners. This programme of obtaining two diplomas increases the attractiveness and reputation of the University of Gdansk for potential students. This fact confirms the hypothesis No. 1.

The Master Degree in IB is a 2-years (4-semester) full-time graduate programme taught entirely in English. Applicants should have a Bachelor Degree (or equivalent) preferably in Economics, Management, Finance, Public Policy or Business. Students obtain full recognition of studies by receiving 120 ECTS points. The graduates achieve the final degree of MA in International Business after positive review of their Master Thesis and positive assessment of their performance on the Master Exam (Defence).

The MA degree programme structure also consists of strong core and major subjects and an interesting range of electives (Appendix 2). Core modules include mathematical statistics, econometrics, controlling, advanced international economics, international public law, and ethics. Major and specialisation modules include globalisation and regionalisation in world economics, international finance, transportation and forwarding, intercultural communication in business, sustainable development, corporate finance, human resources management, mergers and acquisitions, portfolio management, market simulation, multilateral trade system and the WTO, and a number of optional courses.

Among the main sources of benefits to BA and MA students are tutorial methods including traditional lectures through academically rigorous courses both by

outstanding Polish and foreign professors and company practitioners, and various interactive teaching methods, such as case study analysis, team work, buzz groups and individual supervision for students' thesis. Consequently, the wide range of teaching methods focuses on providing students not only with knowledge, but - importantly - with competences that enable students to create their own expertise and skills. Students are also encouraged to prepare their Diploma Thesis in accordance with their particular interests.

Furthermore it should be acknowledged that both the BA and MA curricula have undergone substantial evolution from their initial creation and are regularly evaluated. This indicates that international business education needs to be thought out carefully, following the nature and requirements of an international economic environment. Thus, these programmes were updated according to new insights into the reality of business activity. This gives also students the latest theoretical knowledge of the contemporary business environment.

For example, in October 2008 the BA curriculum included in total 48 different courses divided into four groups (and additionally electives): general educational, core, major, major and minor courses for the specialisation. Nowadays the BA programme includes 41 different courses as shorter 15-hour courses were either combined or eliminated (also true forelectives). Changes as regarded the MA curricula were less visible, and concerned mainly replacement of some courses to provide graduates with knowledge that helps build comprehensive managerial competences.

PRACTICE OF IB AT THE FE

Number of students admitted to Bachelor and Master IB studies

International Business studies have been developing since their commencement in 2008 as regards the number of students. As shown in Table 1, in the six years since 2008 the number of students admitted to the Master programme increased from 24 Polish and 3 foreign students (total: 27) to 28 and 19 (total: 47) students respectively, for an increase of 70 per cent. However, this was not stable growth, especially due to a fall in 2009. On the other hand, it can be considered as a generally rising trend.

*Table 1
Number of students admitted to IB MA studies*

| Years | 2008/2009 | | 2009/2010 | | 2010/2011 | | 2011/2012 | | 2012/2013 | | 2013/2014 | |
|-------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|--|
| | Polish | Foreign | Polish | Foreign | Polish | Foreign | Polish | Foreign | Polish | Foreign | | |
| | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|--------------------|----|---|----|---|----|---|----|---|----|----|--------|---------|
| | | | | | | | | | | | Polish | Foreign |
| number of students | 24 | 3 | 16 | 4 | 25 | 6 | 29 | 6 | 25 | 13 | 28 | 19 |

Source: Own calculation based on data provided by the Dean's Office, Faculty of Economics, University of Gdansk

This growing tendency is even more clearly visible in Figure 1. These rising numbers are evidence of the

success of MA IB studies with special regard to Polish students and the rapidly growing number of foreign students, which confirms Hypothesis No. 1.

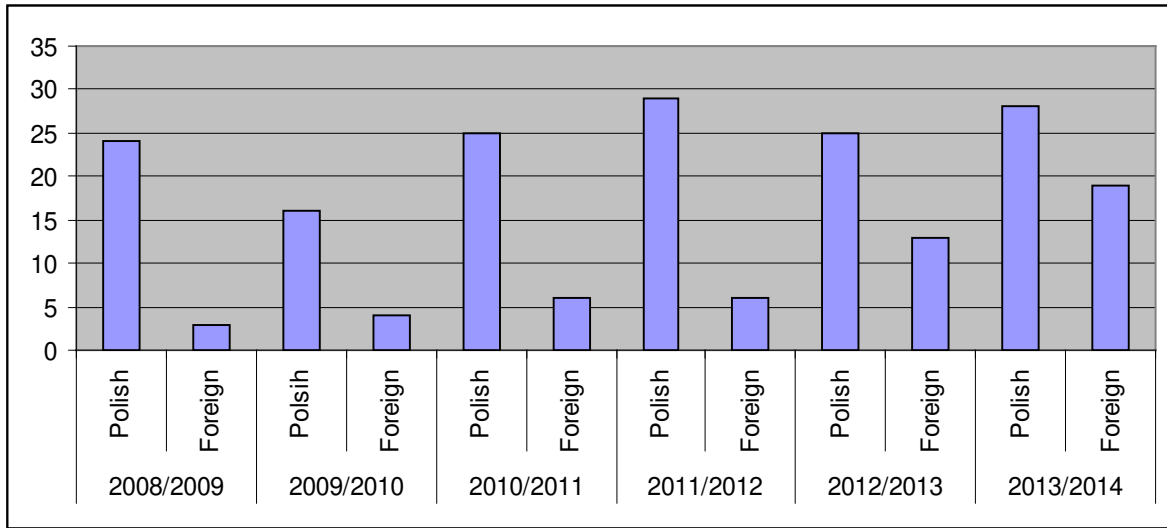


Figure 1. Number of students admitted to MA studies

Source: as Table 1.

The situation with students' admittance to BA studies is presented in Table 2. Enrolment increased from 32 Polish student and 1 foreign student in 2008 (total: 33) to 109 Polish and 7 foreign students in 2013 (total: 116). However, in this respect we can observe some major fluctuations. This relates to an enormous increase in the number of Polish students to 57 students in 2009 and then to 109 students in 2012, although there was a decrease in 2013 to 74 Polish students. Among the major reasons

behind this temporary fall in the number of students was fierce competition, especially from Gdansk University of Technology where the Faculty of Management and Economics commenced full-time Master, and Bachelor programmes in the field of Management in English, with no tuition fee. It also relates to a large increase in the number of foreign students to 18 students in 2009 and to 34 in 2010, but a big fall to 14 students in 2011 and 7 in 2012, but again an increase to 14 in 2013.

Table 2

Number of students admitted to BA studies

| Years | 2008/2009 | | 2009/2010 | | 2010/2011 | | 2011/2012 | | 2012/2013 | | 2013/2014 | |
|--------------------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|
| | Polish | Foreign | Polish | Foreign | Polish | Foreign | Polish | Foreign | Polish | Foreign | Polish | Foreign |
| Number of students | 32 | 1 | 57 | 18 | 61 | 34 | 90 | 14 | 109 | 7 | 74 | 14 |

Source: as Table 1.

These fluctuations can be explained by the rising popularity of IB studies among Polish students on the one

hand, and by some mistakes in the recruitment process on the University level leading to an unfortunate decrease in the arrivals of Chinese students on the other hand.

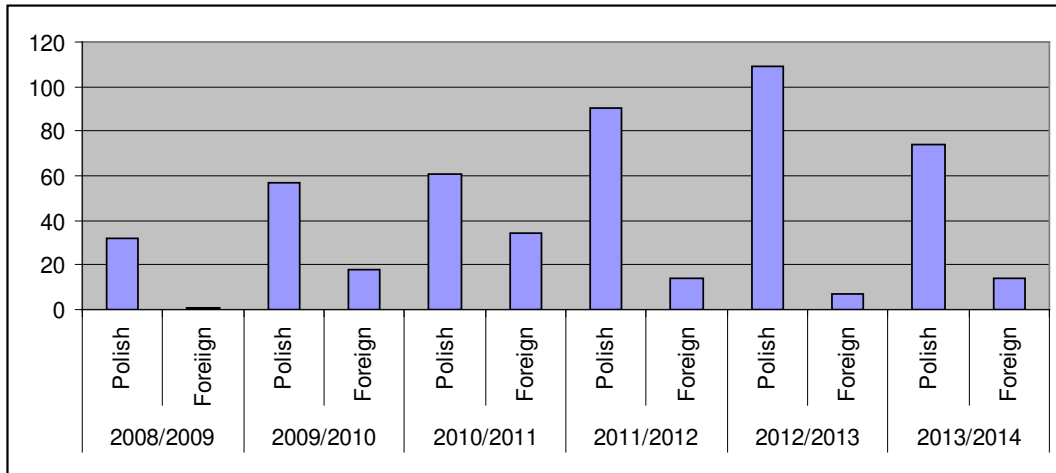


Figure 2. Number of students admitted to BA studies
Source: as Table 1.

Nationality of foreign students admitted to IB studies in years 2008-2013

The total number of MA IB students admitted in the years 2009-2013 was 198, of which foreigners constituted

51 students, or 25.8 per cent (Figure 3). Among foreign MA students dominated Chinese (20), with students also from, Turkey (4) and Azerbaijan (3), Germany (3), Ukraine (3), India (3) and Russia (3).

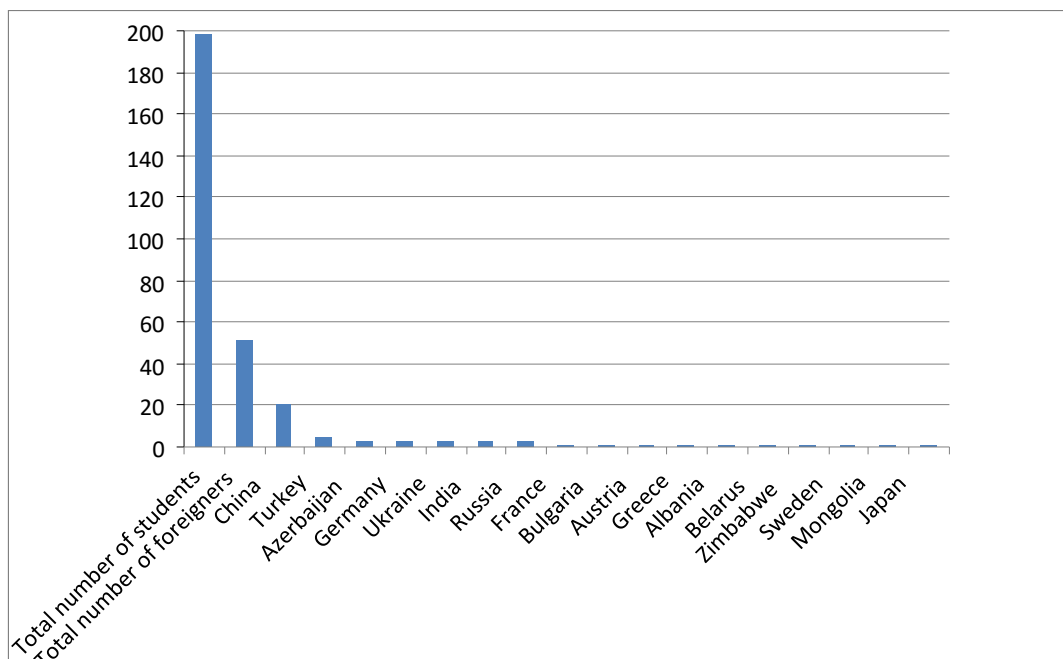


Figure 3. Nationality of foreign students admitted to MA studies in years 2008-2013
Source: as Table 1.

The total number of IB BA students admitted in the years 2008-2013 was 511, of which 88 were foreign, accounting for 17.2 per cent (Figure 4). Chinese students were the largest group among foreign BA students, and

consisted of 64 students (representing nearly 12.5 per cent of the total admitted), there were also 7 Russian students, and 3 students from the USA.

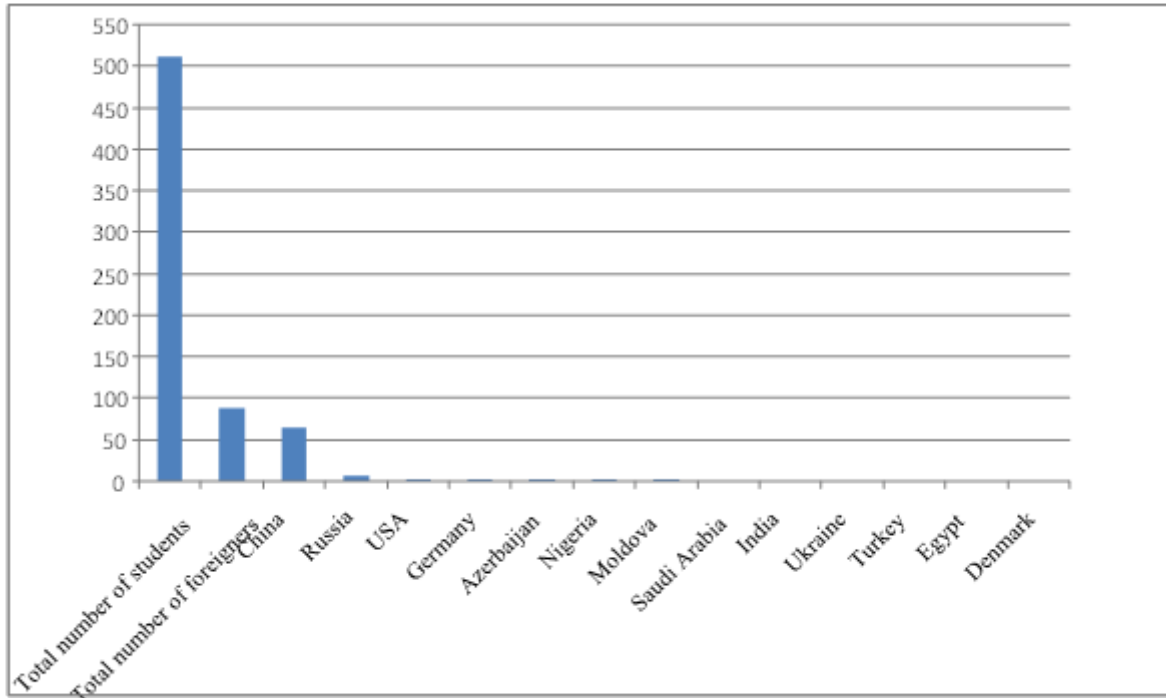


Figure 4. Nationality of foreign students admitted to BA studies in years 2008-2013

Source: as Table 1.

Percentage of BA and MA theses topics written by students

In the five years since 2010, the total number of Master's Theses defended and students who completed their International Business studies consists of 111 graduates³. They represented 56.1 per cent of total admitted students. Unfortunately, this result can be considered as unsatisfactory. Students' involvement in full-time job activities can be an explanation as an important reason of those poor results. This result will

achieve a higher percentage at the end of academic year on September 30, 2014⁴.

Students are encouraged to prepare their Diploma Thesis in accordance with their particular interests. Among the fields of economics that students find most interesting and covered most often in MA thesis are: international economic relations (IER) - 33.7 per cent, marketing – 21.7 per cent, finance – 16.3 per cent and management 7.7 per cent of the total. A more detailed breakdown of themes of thesis is presented in Figure 5.

³In 2014, data covered only students graduated till 30.06.2014.

⁴In accordance with Polish university regulations, students have rights to defend their Master and Bachelor Thesis within a period

of three months after the end of the academic year on September 30, 2014 (until December 31).

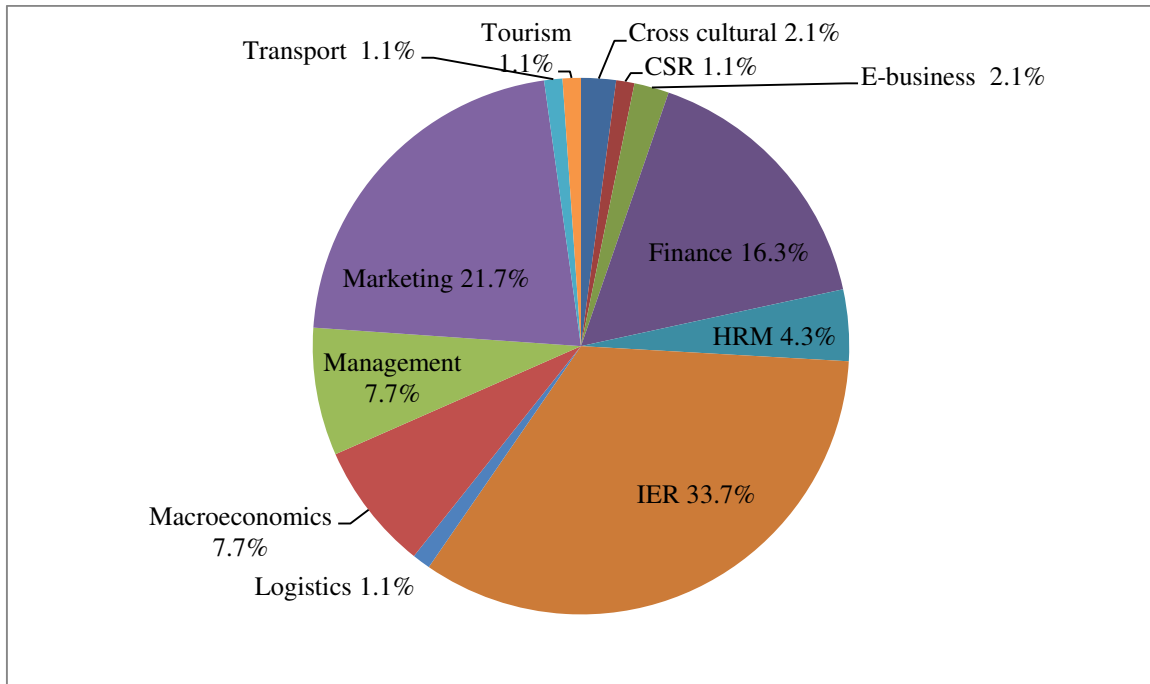


Figure 5. MA thesis topics, 2010-2014*
*till 30.06.2014

Source: as Table 1.

As regards BA studies, in the four years since 2011, the total number of Bachelor Theses defended and students who completed their International Business BA studies consisted of 201 graduates⁵. They represent only 39.3 per cent of total admitted students. This result can be considered as highly unsatisfactory, and can be explained by the number of drop outs among admitted students and difficulties experienced with studying core subjects, such as macroeconomics, microeconomics, statistics, etc. However, there are a number of students who repeat some

semesters and continue their studies. Again, this result will be improved by December 31, 2014.

Among the most popular fields of economics to be chosen by BA students are, similarly to the MA theses: international economic relations (IER) - 31 per cent, marketing - 23.5 per cent, finance - 14.6 per cent and management - 10.6 per cent. A more detailed breakdown of themes of BA theses is presented in Figure 6.

⁵In 2014, data covered only students graduated till 30.06.2014.

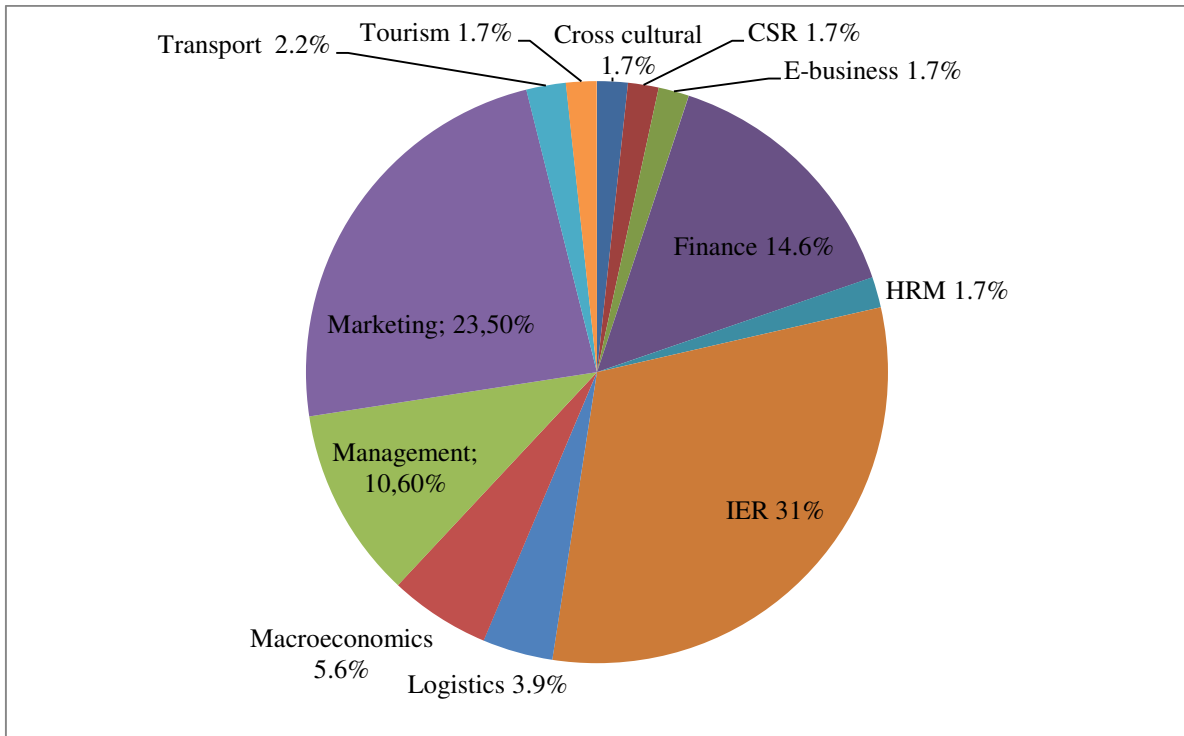


Figure 6. BA thesis topics, 2011-2014*
*till 30.06.2014
Source: as Table 1.

Average grades during the study period of MA and BA students graduated in years 2010-2014

MA students can be considered as rather diligent and good students, although it varies dramatically in different grade levels, as shown in Table 3 and Figure 7.

UG uses a numeric system of grades from 2 to 5. Most grades include also 0.5 point increments. The grades are as follow: 2.0 is failing grade (unsatisfactory), 3.0 is the lowest passing grade (satisfactory), 3.5 (satisfactory plus), 4.0 (good), 4.5 (good plus) and 5.0 is the highest grade (very good).

Table 3.
Average grades of Master students graduating in years 2010-2014

| Average of study period | Total | 3.0-3.99 | 4.0-5.0 | 3.0-3.5 | 3.51-3.99 | 4.0-4.5 | 4.51-5.0 |
|-------------------------|-------|----------|---------|---------|-----------|---------|----------|
| Number graduated | 92 | 25 | 67 | 3 | 22 | 45 | 22 |
| Percentage | 100 | 27.2 | 72.8 | 3.3 | 23.9 | 48.9 | 23.9 |

Source: as Table 1.

Analysing the data provided in Table 3 we can notice that over 70 per cent of MA students achieved an average grade during their study period above 4, with almost 24 per cent above 4.5. This can be assessed as a good result,

especially in the context that these studies are not easy and, what makes it even more difficult, students study and pass exams in a foreign language.

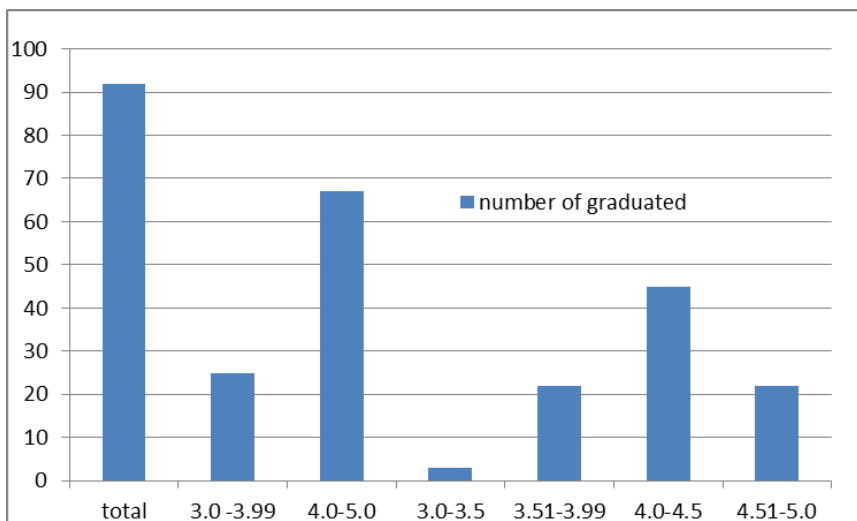


Figure 7. Average grades of MA students graduating in 2010-2014*
*till 30.06.2014

Source: as Table 1.

From the perspective of BA studies average grades of students during whole period of their studies were less favourable. As the data presented in Table 4 and Figure 8

show, a substantial proportion of these grades are below 4, representing 55.6 per cent of BA students.

Table 4.
Average grades of BA students graduating in 2011-2014

| Average grades of study period | total | 3.0 -3,99 | 4.0-5.0 | 3.0-3,5 | 3.51-3.99 | 4.0-4.5 | 4.51-4.91 |
|--------------------------------|-------|-----------|---------|---------|-----------|---------|-----------|
| Number graduated | 178 | 99 | 79 | 31 | 68 | 63 | 16 |
| Percentage | 100 | 55.6 | 44.4 | 17.4 | 38.2 | 35.4 | 9 |

Source: as Table 1.

BA students who achieved an average grade during study period above 4 were less than 45 per cent, which can be regarded as rather good result. However, students with

the best grades rising above 4.5, consisted of only 9 per cent.

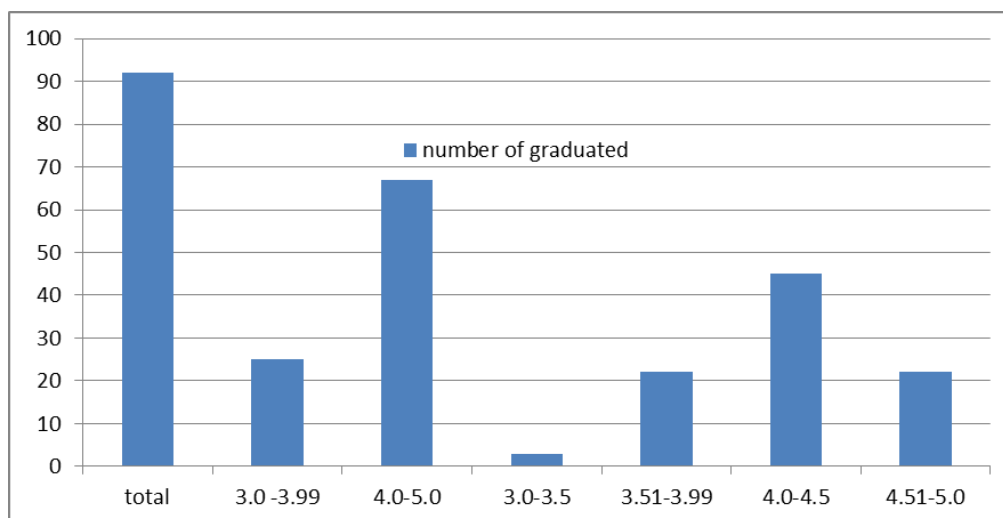


Figure 8. Average grades of BA students graduating in 2011-2014*
*till 30.06.2014

Source: as Table 1.

EVALUATION OF IB STUDIES AT THE UG

According to its mission: “IB programme addresses different issues of globalization, regionalization and intercultural approaches to international business. It provides students for using their competencies in the qualitative and quantitative research methods. Its major objective is to help students supplement or extend their professional and academic knowledge in the field of international business. International Business studies are one of a kind and give their participants access to exceptional knowledge and expertise about strategic and global business management, marketing, financial issues as well as specific insights into business system. Thus, these programmes offer students comprehensive understanding of the complexities in the field of international business” (website of Faculty of Economics, UG).

Advantages of IB studies in English can be formulated as summarized as follows:

- providing students with ‘global skills’ required in the labour market which enhances their competences and possibilities to find a good job (among others IB graduates are often employed by Reuters Thompson, Sony Entertainment, Bayer Centre, Misys, OSTC, Gdynia and Gdansk ports, Deep Container Terminal (DCT), etc.);
- students are offered jobs or internships even during study period (which sometimes collides with normal studying);
- acquiring cross-cultural communication knowledge and sensitivity;
- acceptance of BA graduates as students in any well recognised university all over the world due to recognition of IB diplomas in any country (for some graduates it is a spring-board for further education in other countries or for a better position in professional career);
- developing a strong group of alumni who are ambassadors of these studies;
- a growing number of Polish and foreign students studying IB, which has a significant financial aspect for FE and UG;
- building and/or strengthening collaboration with other HEIs as regards joint or double degree programmes.

These aspects result in a high reputation and development of studies and expansion of their popularity. IB studies improve the international position of the Faculty of Economics at UG. We believe that many talented Polish and international students will choose to complete their degree at our Faculty. And we can agree with a statement in Jarosinski and Robinson’s book that “in today’s environment, no business college or school can afford

NOT to internationalize its programmes, faculty, research and student population” (Jarosinski&Robinson, 2012).

As far as disadvantages are concerned, the number of foreign students that participate in IB study programmes, can be perceived as not completely satisfactory. FE is trying to promote these studies to attract more students from different countries. Possibly the number of drop outs could have also been smaller.

To summarise some of the major themes IB studies are definitely an important new direction in the educational offer of Polish universities and should keep up the high and sustained rates of growth.

One of the important elements of assessing the impact of IB studies on the reputation of UG is its position in the ranking of HEIs in Poland. The role of comparable HEIs ranking is becoming increasingly influential in the context of higher education competitiveness. In Poland, the ranking recognised as the most reliable is the ranking done by Perspektywy.

Perspektywy University Ranking (Poland) is the first national university ranking in the World to pass the rigorous audit and to receive the „IREG Approved” awarded by the IREG Observatory on Academic Ranking and Excellence. In the Perspektywy University Rankings - as many as 33 criteria are used, grouped into six categories: prestige - with the weight of 25%, academic strength (potential) – (15%), academic effectiveness (30%), studying environment (10%), internationalization (15%), and innovation (5%) .

Prestige is covered by three criteria (Perspektywy, 2014):

1. Employer reputation – a number of indications of a certain HEI in a questionnaire survey conducted by the Centre for Marketing Research INDICATOR on the instruction of “Perspektywy” Education Foundation at a representative group of employers. The criterion takes into consideration the survey results obtained within the previous three years. The survey was conducted in 2014 by CATI method at a group of 1800 companies having the headquarters in Poland. The survey had a national outreach. During the previous three years, 3300 entities were examined. The survey included business entities from all the sectors of Polish Enterprise Classification as well as all the voivodeships (11%).
2. Academic reputation (teaching) – a number of indications of a certain HEI in a questionnaire survey conducted among university academic staff (full professors as well as doctors with habilitation, who obtained their current academic title within the previous three years). Altogether, within the previous three years 675 freshly nominated full professors and 1077 freshly nominated doctors with habilitation were examined. The survey does not take into account the votes given in favour of the HEIs being the core place of employment for the respondent. The survey was conducted via the Internet by CAWI

method. The survey was carried out by the “Perspektywy” Education Foundation (11%).

3. International recognition – measured by a HEI’s position in international rankings (2%).

The analyses of changing results of this indicator seems to be most important to examine Hypothesis No. 1. Analysing the UG ranking positions since 2008, we observe a clear improvement in prestige in the last 4 years (Table 5).

Table 5
Ranking position of the UG in years 2008-2014

| Year | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|----------|------|------|------|------|------|------|------|
| Rank | 20 | 17 | 20 | 18 | 15 | 14 | 15 |
| Prestige | 11.6 | 17.0 | 15.9 | 15.6 | 32.5 | 38.1 | 41.2 |
| e | | 2 | | 2 | 1 | 7 | 8 |

Source: own elaboration based on www.ranking.perspektywy.org.

We argue that IB studies at the FE were among the criteria that led to the Faculty being awarded with positive assessment by the Polish Accreditation Committee (PKA) in June 2014. Positive assessment confirms that given programme of the FE meets all requirements set by PKA. IB studies were assessed (together with a few other criteria) with a very good grade and were assumed to be an important step in the direction of internationalization and development of the Faculty.

Partnership agreements with foreign universities result from the fact that IB studies are on the Faculty educational offer. Such agreements were, recently signed by the FE with the University of Kobe (Japan), Kyungpook National University in Daegu (Republic of Korea), SolBridge International School of Business at Woosong University in Daejeon (Republic of Korea), Caucasus International University in Tbilisi (Georgia) and a number of new partnership agreements are under negotiations with Chinese universities (in Beijing, Canton, Shanghai). Additionally, collaboration with business, both global and local companies, and consulting firms and other institutions, e.g. ACCA, are intensified due to the skills that IB students are expected to acquire.

These facts (the high evaluation level of PKA and new partnerships agreements with universities and business entities) confirm Hypothesis No. 2.

RECOMMENDATIONS AND CONCLUSIONS

As IB teachers, scholars and administrators we would like to make a few suggestions:

- Everything can be improved;
- Permanent evaluation of programmes and trends in the world is a must;
- An aggressive advertisement campaign improves enrolment;
- Lower price of studies is not always an incentive for potential students (not even for middle income students);
- Quality and ranking position as well as an international accreditation of studies often play an important role in the assessment of study programmes;
- Co-operation with international partner universities adds value;
- High qualifications of teachers (professors) of international business are indispensable element of IB studies;
- Engagement of Faculty staff members and students is a crucial element;
- Revision and changes in approach to methods of teaching are needed (usage of active methods, “learning by doing” situation).

In this paper we fully confirmed our two hypotheses. The implementation of International Business studies contributes to the improved reputation of the Faculty of Economics and the University of Gdansk (Hypothesis 1) and enables further development of the Faculty, which is confirmed by the high accreditation rating from by PKA (Hypothesis 2).

Additionally, we would argue that IB studies and their participants on both sides are acting as a bridge between theory and practice.

Such BA and MA programmes provide international business knowledge and skills that allows graduates to be better equipped to identify, model and control business processes in today's environment.

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Appendix 1

Bachelor in International Business curricula for academic year of 2013/2014

| No. | Course title | Exam or assessment after semester | Total hours | Total ECTS |
|---------------|--|-----------------------------------|-------------|------------|
| | GENERAL EDUCATIONAL COURSES | | | |
| 1 | Foreign Language I | 2 | 120 | 8 |
| 2 | Foreign Language II | 4 | 120 | 8 |
| 3 | Physical Fitness Training (Sports) | assessment | 60 | 2 |
| 4 | Philosophy | assessment | 30 | 3 |
| 5 | Human Geography | 2 | 30 | 3 |
| 6 | Information Technologies | 1 | 30 | 2 |
| Total General | | | 390 | 26 |
| A. | CORE COURSES | | | |
| 7 | Microeconomics | 2 | 60 | 9 |
| 8 | Macroeconomics | 1 | 60 | 9 |
| 9 | Mathematics Applications in Economics and Management | 1 | 45 | 8 |
| 10 | Descriptive Statistics | assessment | 30 | 3 |
| 11 | Knowledge Management | assessment | 30 | 3 |
| 12 | Financial Analysis | assessment | 30 | 3 |
| 13 | Fundamentals of Law | assessment | 30 | 3 |
| 14 | Finance | 2 | 45 | 5 |
| 15 | Accounting | 2 | 45 | 6 |
| 16 | International Economic Relations I | 3 | 60 | 8 |
| Total Group A | | | 435 | 57 |
| B. | MAJOR COURSES | | | |
| 17 | International Settlements | 5 | 45 | 4 |
| 18 | International Business Transactions | 4 | 60 | 7 |
| 19 | Civil and Business Law in International Trade | 3 | 30 | 3 |
| 20 | Fundamentals of European Integration | 4 | 60 | 7 |
| 21 | International Marketing | 3 | 60 | 8 |

| | | | | |
|--------------------|---|-------------|------|-----|
| 22 | International Business Management | 5 | 30 | 2 |
| 23 | Economic policy of the OECD Member Countries | assessment | 30 | 3 |
| 24 | European competition policy | assessment. | 30 | 2 |
| 25 | Thomson Reuters Academy | assessment | 15 | 2 |
| Total Group B | | | 360 | 38 |
| Total General +A+B | | | 1185 | 121 |
| C. | MAJOR AND MINOR COURSES FOR THE SPECIALIZATION | | | |
| 26 | BA Seminar | assessment | 60 | 10 |
| 27 | Business Correspondence | assessment | 30 | 2 |
| 28 | International Competitiveness and Strategic Alliances | 5 | 30 | 2 |
| 29 | Marketing Research Methods | 4 | 30 | 3 |
| 30 | Market Simulation | assessment | 30 | 2 |
| 31 | Entrepreneurship | 6 | 30 | 2 |
| 32 | Banking | 4 | 30 | 2 |
| 33 | Economy of the Central and Eastern European Countries | 5 | 30 | 2 |
| 34 | Psychology of Economics | assessment | 30 | 1 |
| 35 | Consumer Behaviour | assessment | 30 | 2 |
| 36 | Project Management-in Search of Excellence | assessment | 30 | 2 |
| 37 | Contemporary Problems of Transport and Logistics | 5 | 30 | 2 |
| 38 | Sustainable Development – Theory and Practice | assessment | 30 | 2 |
| 39 | Tourism and Hospitality Management | assessment | 30 | 2 |
| 40 | Public Speaking and Business Negotiations | assessment | 30 | 2 |
| 41 | Diplomatic Protocol | assessment | 15 | 1 |
| 42 | Electives | assessment | 120 | 20 |
| Total Group C | | | 615 | 59 |
| Total IB | | | 1800 | 180 |
| Total of Exams | | | 22 | |

Source: http://ekonom.ug.edu.pl/web/studenci/index.html?lang=pl&ao=i_stopien_, (20.06.2014).

Appendix 2

Masters in International Business curricula for academic year of 2013/2014

| No. | Course title | Exam after semester or assessment | Total hours | Total ECTS |
|-----|-----------------------------|-----------------------------------|-------------|------------|
| | GENERAL EDUCATIONAL COURSES | | | |
| 1 | Business Foreign Language | 2 | 60 | 4 |
| 2 | Ethics | assessment | 30 | 3 |

| | | | | |
|----------------------------|--|------------|------------|------------|
| TOTAL | | | 90 | 7 |
| A. | CORE COURSES | | | |
| 3 | Mathematical Statistics | 1 | 30 | 5 |
| 4 | Econometrics | 2 | 30 | 7 |
| 5 | International Economic Relations II | 1 | 30 | 5 |
| 6 | International Public Law | assessment | 30 | 4 |
| TOTAL Group A | | | 120 | 21 |
| B. | MAJOR COURSES | | | |
| 7 | Globalization and Regionalization in the World Economy | 3 | 30 | 4 |
| 8 | International Finance | 3 | 45 | 7 |
| 9 | Transportation and International Logistics | 1 | 45 | 7 |
| 10 | Intercultural Communication in Business | assessment | 30 | 3 |
| TOTAL Group B | | | 150 | 20 |
| TOTAL General + A+B | | | 360 | 48 |
| C. | MAJOR AND MINOR COURSES FOR THE SPECILAIZATION | | | |
| 11 | Portfolio Management | 2 | 30 | 4 |
| 12 | Practical Path to Sustainable Development | assessment | 15 | 2 |
| 13 | The Multilateral Trade System and the WTO | assessment | 30 | 2 |
| 14 | Marketing in the Financial Sector | 1 | 30 | 5 |
| 15 | Mergers and Acquisitions | assessment | 15 | 1 |
| 16 | Corporate Finance | 2 | 30 | 4 |
| 17 | International Human Resources Management | 4 | 30 | 2 |
| 18 | Market Simulation II | assessment | 15 | 1 |
| 19 | Controlling in the international economic processes | assessment | 15 | 1 |
| 20 | MA Seminar | assessment | 120 | 30 |
| 21 | Electives | assessment | 120 | 20 |
| TOTAL Group C | | | 450 | 72 |
| TOTAL IB | | | 810 | 120 |
| Total of Exams | | | 11 | |

Source: http://ekonom.ug.edu.pl/web/studenci/index.html?lang=pl&ao=ii_stopien_, (20.06.2014).

Analysis of the relationship among innovation performance, economic development and social welfare

LÁSZLÓ MOLNÁR, PhD
ASSISTANT PROFESSOR

laszlo.molnar@uni-miskolc.hu

SUMMARY

In our modern world everything is related: without innovation performance there is no economic development, without economic development no improvement can be found in social welfare and vice versa. In this study I explore the relationship among these three key factors with the help of statistical methods. Before that I give a brief summary on the indices that makes the measurement of the above-mentioned fields possible. After that I carry out statistical description of these relationships by pairs with the method of correlation analysis. Results obtained on the basis of data of the European Union member states prove that relationships among innovation performance, economic development and social welfare of countries are very strong and statistically significant. Furthermore, analysis described in the paper also proves that increasing innovation performance has a positive effect on different dimensions of social welfare.

Keywords: R&D; innovation; economic development; social welfare; impact assessment

Journal of Economic Literature (JEL) code: O30

DOI: 10.18096/TMP.2015.01.07

INTRODUCTION

Research and development and innovation has an indisputable role in increasing the economic competitiveness of a country or a region and also indirectly in creating social welfare (Pitti 2006). Theoretical and practical professionals have been interested in this issue for decades, what is more for centuries. However it was not always called research and development and innovation but simply technological development (Pakucs 2003). Nowadays the significance of research and development results, new or significantly improved products, services, processes, marketing and organisational innovations in each economic branch has been increasing (Török 2006). There is growing interest in connection with the topic among the government, businesses and public opinion as well, since performance in the field of science and technology is an alternative tool for economic prosperity on the individual, corporate and macroeconomic level.

The aim of the present study is to give a brief overview about the measurement methods of innovativeness, economic development and social

welfare. After that I will describe the relationship of these three key factors as well the effect of innovation performance on certain dimensions of social welfare.

LITERATURE REVIEW

Measuring innovativeness

Researchers have been interested in the measurement of innovative activities and performance for a long time. There have been a lot of experiments carried out to develop more relevant, precise (easier to compare, more complete, etc.) methods. OECD and its organisations are the most important among the international organisations and different countries' science and technology political institutions and have had an indisputable role in this field in the past thirty to forty years. I would like to highlight the Oslo Manual (OECD 2005), which has widespread professional recognition. We distinguish among measurement methods thematic indicators, scoreboards handling index-groups, composite indicators created from indices and complex assessment techniques (measurement models). The most important

composite indicators of innovativeness applied in international comparison are the following:

- Summary Innovation Index (SII) (Hollanders & van Cruysen 2008; EC 2009)
- Regional Innovation Index (RII) (Hollanders et al. 2014)
- Global Innovation Index (GII) (Dutta et al. 2014)
- Global Competitiveness Index (GCI) twelfth pillar (WEF 2009)
- Knowledge Economy Index (KEI) and Knowledge Index (KI) third pillar (WB 2009).

Beside the above-mentioned indices the following organisations have also developed their own indices that have been applied to compare research and development and innovation performance on an international level. While these methods do not have their own “brand” name, for their identification the name of the developing organisation can be used.

- International Institute for Management and Development (IMD),
- National Science Board of the USA (NSB),
- Research and Development Corporation (RAND Corporation),
- United Nations Development Programme (UNDP),
- United Nations Industrial Development Organisation (UNIDO), or
- United Nations Conference on Trade and Development, (UNCTAD).

However these attempts were made for a single year and did not continue (IMD 2009; NSB 2008; Wagner et al. 2001; UNDP 2007; UNIDO 2005; UNCTAD 2005).

In my own research I apply the Summary Innovation Index for the measurement of innovation performance for the following reasons:

- This index traces back to the earliest times among the innovation composite indicators (the first version dates back to 2001 and it has existed since then). The same can not be declared about several other indices, many of which were forgotten after a year.
- The Summary Innovation Index is actualised from year to year, its methodology is supervised, and it is also corrected if necessary to give a more complex and precise picture about the innovation situation of countries.
- This composite indicator consists of 25 innovation indices which cover the input, process and output sides of innovation activity, as well.
- It is an indicator accepted Europe-wide both among science and technology political decision makers as well as in the academic sphere.
- Numeric values of the indicator (database) are easily accessible.

It is important to mention that the Summary Innovation Index (SII) is a composite indicator of aggregated national innovation performance which is set up by 25 indices of the Innovation Union Scoreboard (IUS) (Hollanders & Es-Sadki 2014). Figure 1 shows indicators creating the SII and their structure.

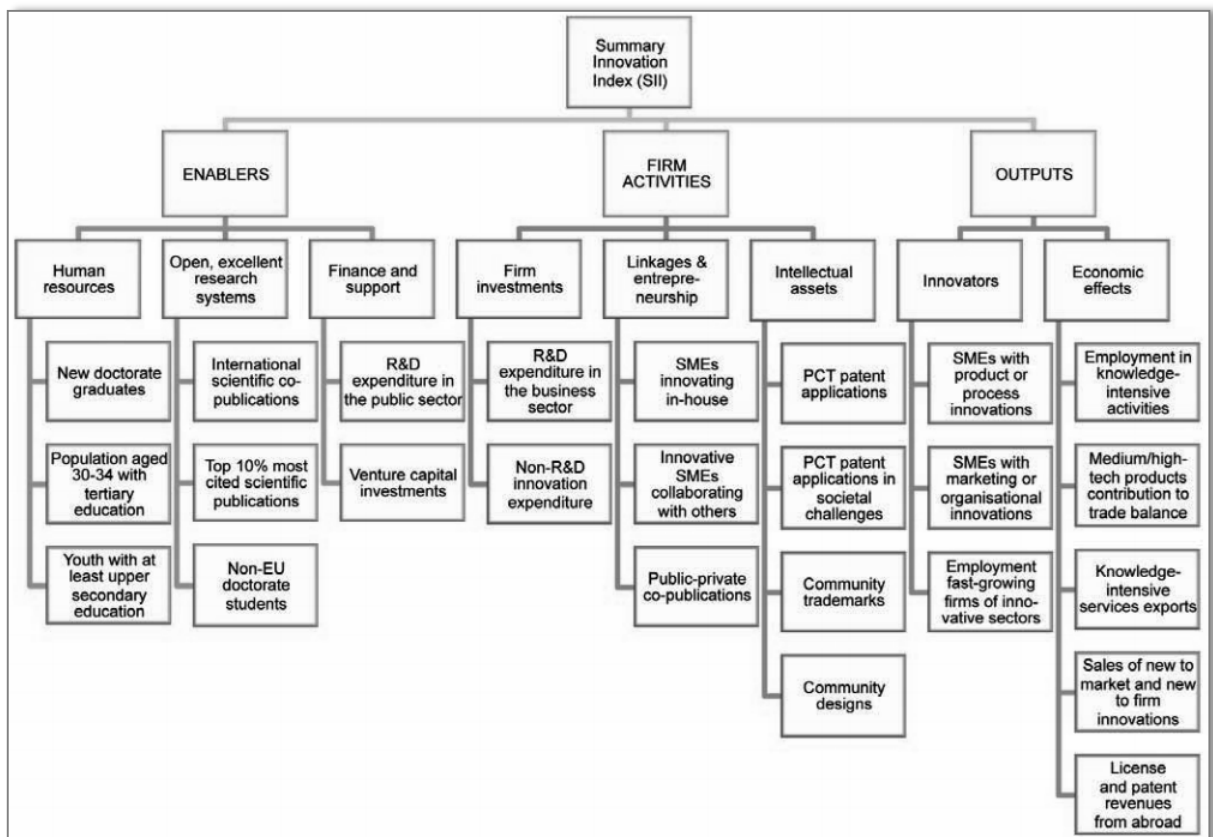


Figure 1. System of 25 indicators serving as a basis for the Summary Innovation Index

Source: Hollanders & Es-Sadki, 2014

Calculation of this complex index is carried out in eleven steps according to sophisticated statistical methods (Hollanders & Tarantola, 2011). According to the values of the Summary Innovation Index the countries can be put into four groups: innovation leaders, innovation followers, moderate innovators and modest innovators. Earlier, groups were created by hierarchic cluster analysis (average chain between groups method, squared Euclidean distance) (Hollanders & van Cruysen, 2008). The latest methodology is carried out as follows (Hollanders & Tarantola, 2011):

- „innovation leaders”: performance > 1.2 * EU-average
- „innovation followers”: 1.2 * EU-average > performance > 0.9 * EU-average
- „moderate innovators”: 0.9 * EU-average > performance > 0.5 * EU-average
- „modest innovators”: 0.5 * EU-average > performance

Indicators of economic development

There has been a lot of criticism in connection with the application of GDP, the most popular comprehensive indicator showing the common effect of several factors (Kristóf 2003). Despite this fact I will use this indicator (GDP) for the measurement of economic development in my own research. The most important criticism in connection with this indicator is that this is economic index in a narrow sense, yet GDP is used for describing economic welfare. Further limitations of GDP are detailed by Kristóf (2003) using statements of Heltai (1999), Csath (2001) and ECOSTAT (2002):

- GDP only gives a real picture about the incomes of certain people in countries with less concentrated income. In case of significant income concentrating in a smaller portion of society (rich people), the majority of the society lives below the average income level.
- GDP per capita is calculated by a common exchange rate (often in an actual average currency exchange rate) in order to make it comparable, therefore the GDP index is influenced by exchange rate volatility.
- Black economy includes activities that bring relatively high income to certain people but do not actually appear in the GDP.
- GDP does not consider welfare decrease due to environmental harm, but at the same time protection against environmental damages is included in the GDP.
- Production in non-market way (for example certain household work, agricultural activities) is not included in GDP.

Measurement of economic development has improved in three directions (Gáspár 2013). One of the directions is to apply the GDP and supplement it with social and environmental indices. Several indicators have been created in the field of education, health care, poverty, environment and social participation so far.

Another direction for development has been the correction of GDP; it was completed with social and environmental costs that has not been included so far. The most popular ones are the following:

1972 - Measured economic welfare, net economic welfare

1989 - Index of sustainable economic welfare

1995 - Genuine progress indicator.

The third direction of such measurements tried to replace GDP with composite indicators (that contain a refined form of gross domestic product:

1979 - Physical quality of life index

1990 - Human development index

1992 - Life product index

1995 - Basic and advanced quality of life index.

GDP was chosen for my own research because in every further developed indicator of economic development GDP – as you could read above - is applied in some way, as the best known, so-called core indicator of the topic.

Indicators of social welfare

Measurement of social welfare has a long history; the Gallup Institute in the United States has been examining satisfaction since 1948. However it only spread in Europe at the end of the 1970s and in the 1980s. The first international surveys were carried in the 1980s. There has been growing interest in connection with the topic since the 1990s, both from the side of political decision makers and public opinion (Gáspár 2013).

Social welfare is basically a summary of individual life quality that could be described by individuals' satisfaction and happiness with their lives and life circumstances (Hegedűs 2001). However welfare has no generally accepted definition, therefore it exists with the following competitive interpretation in the professional literature: life quality, welfare, high living standard, level of life quality, utility, satisfaction, prosperity, meeting needs, development, social inclusion, development of abilities and skills, human development and more often happiness (McGillivray & Clarke 2006).

The most important surveys and comparisons of the internationally widespread ones are the following (Gáspár 2013):

- World Value Survey (survey of values and cultural changes)
- Gallup World Poll (Gallup-Healthways welfare index)
- New Economics Foundation (Happy Planet Index)
- International Social Survey Programme (happiness data)
- European Social Survey (value and lifestyle surveys)
- European Values Study (investigating what people think about their lives, jobs, families, religion, society and politics)
- Euromodul (measurement of life circumstances and life quality)
- Eurobarometer (survey focusing welfare)
- European Quality of Life Survey
- OECD Better Life Index (economic, social and environmental indices).

I chose the OECD Better Life Index (BLI) in my research for the following reasons:

- Although the first edition appeared in 2011, preparation lasted for nearly 10 years. This was the first experiment to create a method for international comparison of welfare that also considered suggestions of Commission on the Measurement of Economic Performance and Social Progress (also called the Stiglitz-Sen-Fitoussi Commission).
- This composite indicator consists of 24 indices that cover all the dimensions focusing on people's present and future welfare.
- It is accepted not only in Europe but also all over the world. It is also recognised by theoretical and practical experts, who refer to this composite indicator many times.
- Last but not least, the database is also easy to access and contains concrete values.

It is important to know that the indicator aggregates the information of 24 indices that cover 11 dimensions of social welfare. The system of dimensions and indices is contained by the following list:

1. Housing: Dwellings without basic facilities; Housing expenditure; Rooms per person
2. Income: Household net adjusted disposable income; Household net financial wealth
3. Jobs: Employment rate; Job security; Long-term unemployment rate; Personal earnings
4. Community: Quality of support network
5. Education: Educational attainment; Student skills; Years in education
6. Environment: Air pollution; Water quality;
7. Civic engagement: Consultation on rule-making; Voter turnout
8. Health: Life expectancy; Self-reported health
9. Life Satisfaction: Life satisfaction
10. Safety: Assault rate; Homicide rate
11. Work-life balance: Employees working very long hours; Time devoted to leisure and personal care.

The index is unique because the weights of dimensions can be chosen as wished, so anybody can create his own social welfare indicator by changing dimension weights. This is illustrated by an interactive

application on the home page of the Better Life Index <http://www.oecd-betterlifeindex.org/>.

DATA AND METHODS

In the rest part of my research I carried out the analysis of relationship among the three key factors mentioned above:

1. **innovative performance,**
2. **economic development,**
3. **social welfare.**

I chose the Summary Innovation Index (SII) to measure innovative performance and GDP per capita on purchasing power parity to measure economic development. Regarding quantifying social welfare I applied the OECD Better Life Index (BLI). For the three indices I carried out data collection concerning the 28 member states of European Union. The data of the SII is completely available in the publications of European Commission (see Hollanders & Es-Sadki, 2014). GDP data are also accessible on the homepage of the Hungarian Central Statistical Office. However data of the BLI index are only available for OECD member states, therefore data are missing in case of seven countries of the European Union (Bulgaria, Cyprus, Croatia, Lithuania, Latvia, Malta and Romania).

In order to describe relationship in my research, I set up a so-called framemodel (framemodel for relationship among innovative performance, economic development and social welfare, see Figure 2). It is obvious from the figure that innovation performance (at present SII) relies on three pillars, these are the so-called enablers, firm activities and outputs. These pillars are created by further dimensions (8) and they can also be divided into further indices (24). Another major element of the model is economic development, and the third one is social welfare which – as you can see below – is also created by a number of factors (24 indicators setting up 11 dimensions).

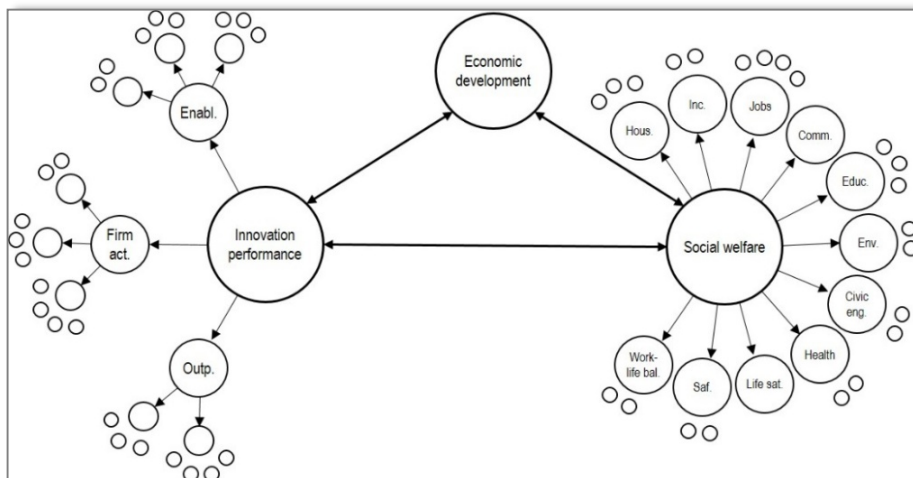


Figure 2. Framemodel of relationships among innovation performance, economic development and social welfare
Source: Compiled by the author

Relationships among the key factors were examined by pairs with the help of correlation analysis and strengths of relationships were quantified by Pearson's simple linear correlation coefficient.

MAIN FINDINGS

After the analyses were carried out, conclusions could be drawn regarding the relationships among innovation performance, economic development and social welfare:

A strong significant relationship ($r=0.726$; $P=0.000$) is shown between innovation performance (SII) and economic performance based on 28 European Union member states (Figure 3). If we suppose that innovation performance influences economic development then we can set up the following linear regression equation: $y=6219.5+52400x$ (where $y=GDP$, $x=SII$), therefore a 0.1 increase in innovation performance causes \$5240 per capita GDP growth. (Determination coefficient of regression function ($R^2=0.83$) shows excellent fit.)

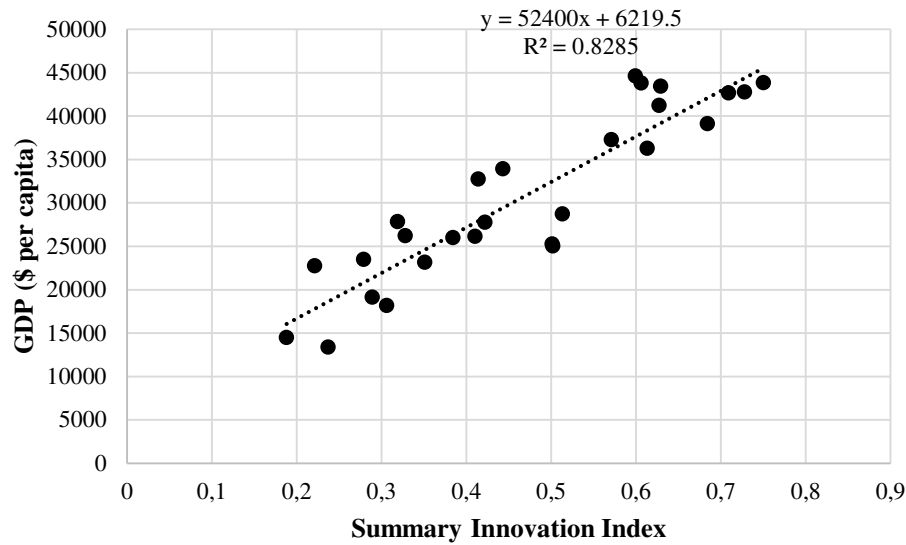


Figure 3. Relationship between innovation performance (SII) and economic development (GDP)
Source: Compiled by the author

Results obtained – while based on another methodology – support results of Pakucs's (2003) synthesising study concluding that there is a significant positive relationship among research and development and productivity as well as economic growth. Szalavetz (2011), who examines the issue of innovation driven growth, has similar results. In her conclusion she emphasises the positive economic and productivity effects of technological innovations. I would also highlight Rosenberg's (2004) results from an international aspect; he found that technological innovation is a main force for economic growth according to analysis on the basis of OECD member states.

There is also a significant relationship ($r=0.894$; $P=0.000$) between innovation performance (SIII) and

social welfare (BLI) based on data of 21 EU member states. If we also suppose innovation performance as the explanatory variable of social welfare then the following regression equation can give us more information about their relationship (Figure 4): $y=0.29+0.68x$ (where $y=BLI$, $x=SII$) therefore a 0.1 increase in innovation performance of a given country causes about 0.07 growth in social welfare index. (Fit of the regression equation is excellent as well: $R^2=0.80$). The figure shows that in the lower interval of SII and BLI correlation is weaker, yet it is stronger in the higher interval. In order to reveal the cause of the difference further investigations are needed; however, that is not the primary purpose of this paper.

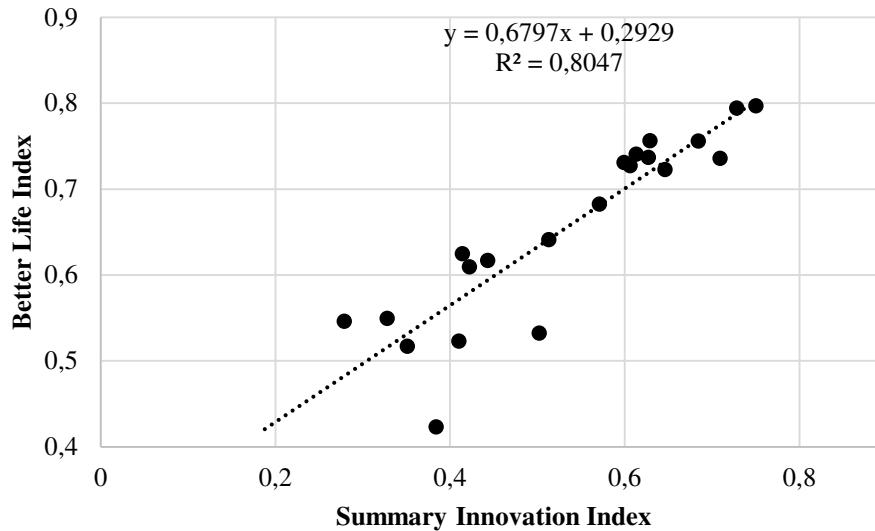


Figure 4. Relationship between innovation performance (SII) and social welfare (BLI)
Source: Compiled by the author

Although the results of this study show a clear relationship between innovation performance and social welfare, the results of Bajmóczy and Lengyel (2010) differ. They found a complex relationship between innovation and welfare that cannot be handled schematically. However, it is true that their research focused on only one Hungarian region (South Great Plain). Málóvics and Bajmóczy (2010) also concluded on the basis of sub-regional level research that different welfare situations can be connected to the same innovation ability and – although their research is indecisive – there was a correlation between innovation and only some dimensions of welfare. From an international aspect we can find confirmation from the European Research Council (ERC),

according to which innovation is very important from the aspect of economic and social welfare and what is more, the Innovation Union concept is based on this fact.

There is also a significant relationship between economic development and social welfare (BLI) and this correlation is medium strong ($r=0.599$; $P=0.000$). According to my third hypothesis, economic development affects social welfare (Figure 5). Linear regression between these two variables can be described with the following function: $y=0.22+0.0125 \cdot 10^{-3}x$ (where $y=BLI$, $x=GDP$) therefore a \$1000 increase in GDP per capita brings 0.0125 growth in the social welfare index. (Fit of linear function is excellent: $R^2=0.84$.)

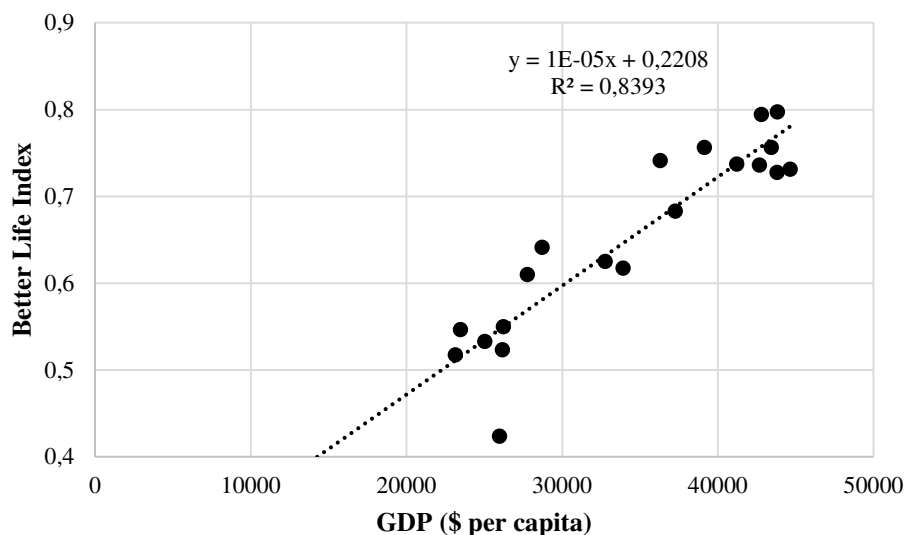


Figure 5. Relationship between economic development (GDP) and social welfare (BLI)
Source: Compiled by the author

Economic development and social welfare are in strong relationship with each other, so much so that they

are handled as synonyms: economic-social development/welfare. Husz (2001, cited in Kristof 2003) says that despite the strong relationship, increasing output is necessary for but not enough to achieve the improvement of social welfare, it is only a possible tool for it. Kopp and Martos (2011) also examined the relationship of these two factors in their study. They say that change in life quality is not linear or have a direct relationship with economic development. It is not true that economic development brings welfare and an increase in happiness.

Certain indicators can even worsen with economic growth. The apparent contradiction between my results and theirs may be explained by the following fact: their study used national longitudinal data while I used my own international comparison.

After exploring and describing more general relationships I examined the effect of innovation performance on certain indices of social welfare. I chose correlation analysis and I summarised significant relationships in Table 1.

Table 1
Relationship between innovation performance and indicators of social welfare

| Dimension | Indicator | Correlation coefficient (r) | Significance level (P) |
|-------------------|--|-----------------------------|------------------------|
| Housing | Rooms per person | 0.782 | 0.000 |
| Income | Household net adjusted disposable income | 0.776 | 0.000 |
| | Household net financial wealth | 0.655 | 0.001 |
| Jobs | Employment rate | 0.756 | 0.000 |
| | Long-term unemployment rate | 0.594 | 0.005 |
| | Personal earnings | 0.804 | 0.000 |
| Community | Quality of support network | 0.520 | 0.016 |
| Environment | Water quality | 0.768 | 0.000 |
| Civic engagement | Consultation on rule-making | 0.523 | 0.004 |
| | Voter turnout | 0.758 | 0.000 |
| Health | Life expectancy | 0.528 | 0.014 |
| | Self-reported health | 0.553 | 0.009 |
| Life satisfaction | Life satisfaction | 0.833 | 0.000 |

Source: Compiled by the author

There is a strong, positive, significant relationship ($0.7 < r$) between innovation performance and several indices of social welfare: Rooms per person (Housing); Household net adjusted disposable income (Income); Household net financial wealth (Income); Employment rate (Jobs); Personal earnings (Jobs); Water quality (Environment); Voter turnout (Civic engagement); and Life satisfaction.

Furthermore there is a medium-strong, positive, significant relationship ($0.4 < r < 0.6$) between innovation performance and long-term unemployment rate (jobs), quality of support network (community); consultation on rule-making (civic engagement), life expectancy (health) and self-reported health (health).

CONCLUSION

I examined measurement methods of innovation performance, economic development and social welfare as well as the relationships among these key factors. The most important findings of the research can be summarised as follows.

Several methods are available for the measurement of innovation performance and there is much interest in so-called composite indicators. Many of them are available to anybody (namely SII, RII, GII, etc.). Since there has

been much criticism of the most widespread index of economic development, GDP, there have also been many experiments to create alternatives. However, these alternatives also contain GDP more or less. There are some that complete, correct or refine GDP. Measurement of social welfare has a long history and a lot of international surveys and comparisons dealt with the topic. The starting point was a summary about individual life quality in every case that can be completed with economic and environmental indices (e.g. Happy Planet Index, Better Life Index, etc.)

The three key factors of my investigation (innovation performance, economic development, social welfare) are without any doubt strongly related with each other, as can be proved by the significant correlation relationship by pairs. As a causal examination was also carried out, we can state that motivating innovation activity and performance has a very positive impact on the economic development and social welfare of a country as well. This is supported by the fact that a strong or medium strong relationship was identified between innovation performance and a number of indicators of social welfare.

Further growth in innovation performance on the macroeconomic level can lead to extremely positive changes in social welfare. The road ahead is long and difficult, but if we follow the philosophy of Thomas A. Edison, it might be easier to travel it: *"I have not failed, I've just found 10,000 ways that won't work."*

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